1994 NATIONAL POLLUTANT RELEASE INVENTORY

ONTARIO REPORT

PREPARED BY:

ENVIRONMENT CANADA - ONTARIO REGION

&

**ONTARIO MINISTRY OF ENVIRONMENT AND ENERGY/
ENVIRONMENTAL MONITORING AND REPORTING BRANCH/
ENVIRONMENTAL INFORMATION AND SYSTEMS SECTION**

OCTOBER 1996

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Ontario Ministry of Environment and Energy
Environmental Monitoring and Reporting Branch
Environmental Information and Systems Section

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PIBS 3510E

Executive Summary

The 1994 National Pollutant Release Inventory (NPRI) is the second year of release and transfer data released to the public by Environment Canada. As previously stated in the 1993 NPRI Summary Report, the NPRI provides information on releases to air, water and land, as well as transfers off-site in waste of 178 substances. The NPRI is presently the only legislated nation-wide, publicly-accessible inventory of pollutant releases and transfers in Canada. This report presents an analysis of Ontario facilities for 1994. The purpose of this report is to illustrate an Ontario perspective addressing regional concerns.

The data in this report was collected from 1,713 facilities nationwide, 864 (or about 50%) of which are in Ontario. Total national releases for 1994 were 190,264 tonnes of which Ontario accounts for 57,192 tonnes (or about 30%).

Of the 864 Ontario facilities, 570 reported releases. Of the 570 facilities that reported releases, 397 also reported transfers. Of the 294 facilities that did not report releases, 131 reported transfers.

An encouraging part of this report is the forecasted reduction in Ontario releases from 57,200 tonnes in 1994 to 40,700 tonnes in 1997.

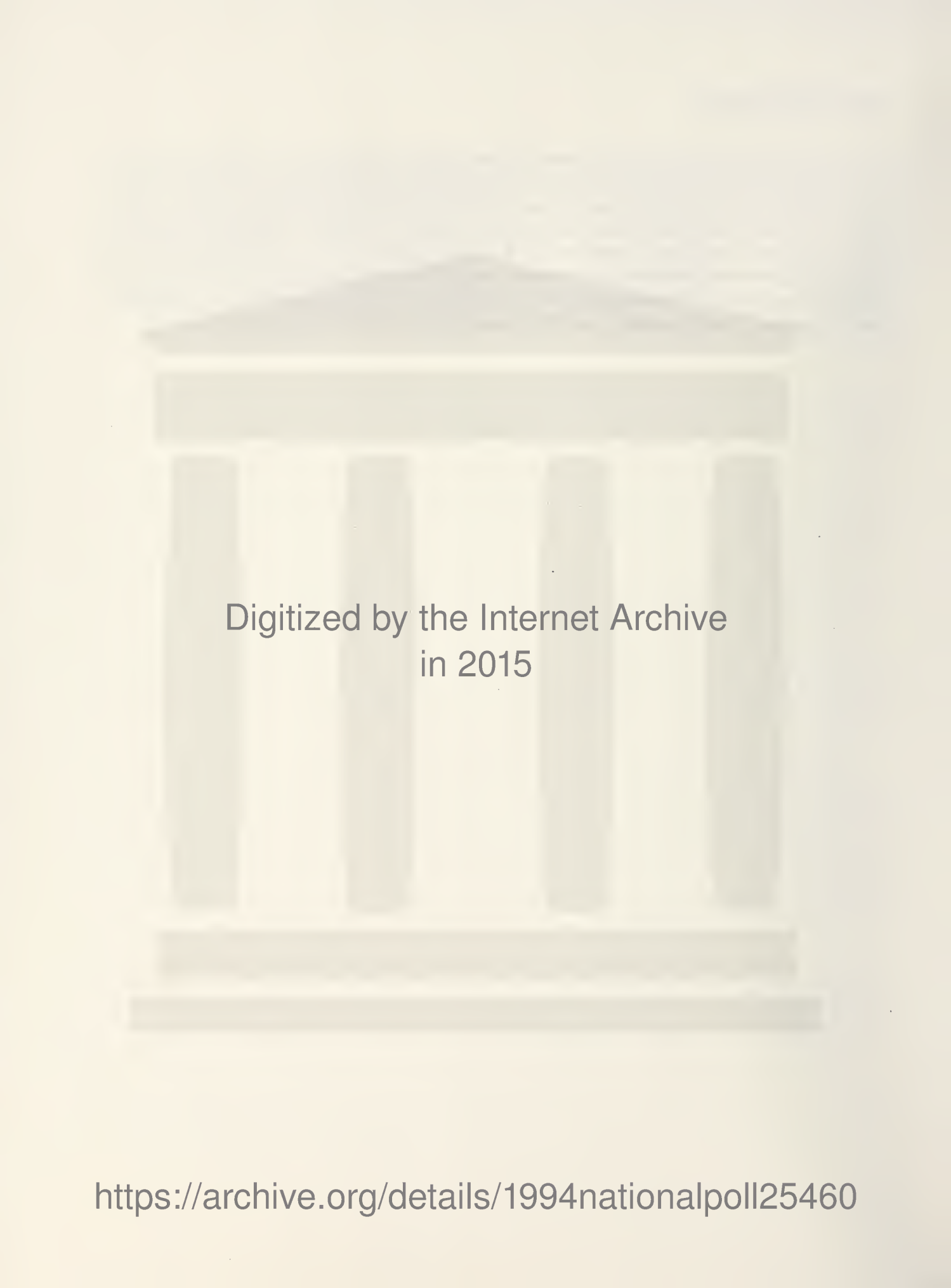
The NPRI has been used by Environment Canada to support and guide the direction of its core programs related to the management of toxic chemicals. Programs include the Priority Substances List 2, the Strategic Options Processes and inventories of persistent organic pollutants and organic chemicals.

A major benefit that was recognized in the second year of reporting was the triggering of public and industry interest in overall releases and transfers in Canada, as well as in Ontario. Many individuals have inquired about the NPRI and the potential use of the data. Ontario-based community groups, media and the general public have approached Environment Canada about getting copies of the 1993 and 1994 NPRI Summary Reports, and about the availability of the NPRI information on the Internet and on Environment Canada - Ontario Region's bulletin board system (BBS).

The NPRI is evolving. Consultations were initiated by Environment Canada to add the tracking of pollution prevention and mandatory reporting of recycling activities, to add specific substances to the NPRI list, and to specify new release triggers for some substances to inventory significant releases.

Acknowledgement

This report was prepared with the help of many people. Environment Canada and the Ontario MOEE wish to acknowledge the assistance of Terry Mah and Suzanne Spicer (of Environment Canada-Ontario Region, Air and Inventories Division); Peter Wong, Patrick McInnis, Margalit Cohen and Arvind Sharma (of the MOEE/Environmental Monitoring and Reporting Branch/EIS Section); Bernie Neary and Sue Port (of MOEE/Environmental Monitoring and Reporting Branch/ERC Section); Savio Wong and Congtru Doan (of CW Environmental Consulting); and Mohamed Nur, L.D. Mishra, Abdi Mohamed, Jerzy Debosz, and Raj Swaminathan (of L.D. Consultants Inc.).



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1. INTRODUCTION

1.1 Overview of the NPRI

The NPRI was established to develop a national, publicly-accessible database of pollutants released to the Canadian environment from industrial and transportation sources. The specific ways and means of achieving this objective were developed with the help of a multi-stakeholder advisory committee (MSAC), which included representatives from industry, environmental, and labour organizations, and from provincial ministries and federal departments, including Environment Canada. The first year of reporting to the NPRI occurred in 1993. The NPRI is expected to be an annual reporting requirement and subsequently, a notice for reporting to the NPRI will be published by the Canada Gazette once per year. The Canadian Environmental Protection Act (CEPA) is presently undergoing future revision and the NPRI and other reporting inventory mechanisms are expected to have its' own explicit statutory basis amended to CEPA in the Winter of 1996.

On February 28, 1994, the Minister of the Environment published in Part I of the Canada Gazette a notice pursuant to subsection 16(1) of the CEPA that requires individuals meeting the reporting criteria for the NPRI, as outlined in the notice, to submit specified information to the Minister of the Environment by July 1, 1995. The deadline date was later extended by Environment Canada to July 17, 1996 because of difficulties and delays in providing NPRI reporting facilities the reporting documents and software needed to complete the report forms.

In general, any person who owns or operates a facility must report only if the facility meets all three of the following criteria for any one of the 1994 NPRI listed substances.

1. The facility has an equivalent of 10 or more full-time employees. A full-time employee is defined as an equivalent of 2,000 worker-hours per year, **and**

2. The facility has manufactured, processed or otherwise used 10 tonnes (10,000 kg) or more of a listed substance in the 1994 calendar year, **and**

3. The listed substance was manufactured, processed or otherwise used at a concentration greater than or equal to 1% by weight.

When calculating the 10-tonne threshold, the following materials containing listed NPRI substances are not to be included in the calculation:

1. Used as a structural component of the facility

2. Used in routine janitorial or facility grounds maintenance

3. For personal use by employees or other persons

4. Used for the purpose of maintaining motor vehicles operated by the facility, or

5. In intake water or intake air, such as water used for cooling or air used either as compressed air or for combustion.

Once a facility has met all three NPRI reporting criteria, they are legally entitled to file a report with Environment Canada identifying any releases and transfers off-site in waste of that specific substance.

A total of 1,713 facilities across Canada filed a 1994 NPRI report with Environment Canada. Reports were filed from most major industrial sectors, as well as federal, provincial, and municipal facilities. There were a total of 864 Ontario based facilities which filed a 1994 NPRI with Environment Canada. This represent ~50.6% of the total database.

Facilities Reporting

For the 1994 reporting year, all facilities meeting the reporting criteria which included manufacturing, non-manufacturing and governmental, were required to report unless they were exempt. These exempt facilities included those used exclusively for:

1. Educating and training of students (universities, colleges and schools)

2. Research or testing of listed substances

3. The maintenance and repair of transportation vehicles, such as automobiles, trucks, locomotives, ships or aircraft

4. The distribution, storage or retail sale of fuels

5. The wholesale or retail sale of articles or products which contain NPRI substances provided that the substances are not released to the environment during normal use at the facility

6. The retail sale of listed substances, provided that these listed substances are not released

7. Growing, harvesting or managing renewable resources (forestry, fisheries and agriculture), but not those facilities that process or otherwise use of their products

8. Mining of materials which contain NPRI substances, but not those facilities engaged in further processing of these mined materials, and

9. Drilling or operating wells to obtain oil and gas products that contain NPRI substances, but not excluding those facilities engaged in further processing these oil and gas products.

1.2 Guiding Principles and Purpose of the NPRI

In developing the NPRI reporting requirements, the advisory committee established the following guiding principles:

1. Seek to improve on existing models

2. Coverage of the NPRI would be comprehensive

3. Exceptions should be made where determining the quantity of a NPRI substance used or released may be unusually difficult, or where reporting could impose an unreasonable burden

4. Reporting should be made as simple as possible

5. The NPRI National Summary report should present a complete picture as possible and include data from other sources

6. The NPRI reporting requirements and those of other government inventories should be harmonized to reduce reporting burden

7. The NPRI should facilitate public access to the data, and

8. The NPRI should evolve over time in response to public, government and industry needs.

The reporting thresholds were recommended by the MSAC with these guiding principles in mind. The major elements contained in the 1994 NPRI reporting forms are still based on the above principles.

The purposes of the NPRI, as established by the MSAC were as follows:

1. ***To establish priorities for action.*** Priorities of action can be established by the general public, governments, industry, businesses, etc.

2. ***To track the progress in reducing releases and transfers of NPRI substances off-site in waste.*** The tracking of progress will occur over a number of years of reported data. The list of reporting facilities will not necessarily be the same from year-to-year, but a high percentage of reporting facilities will remain the same. As reporting facilities establish good environment management practices, the reported amounts of NPRI substances will be reflected by this

effort. The NPRI will provide to the public the necessary tool to track the environmental management of Canadian facilities from year-to-year.

3. ***To allow reporting facilities the opportunity to voluntarily reduce releases and transfers off-site of NPRI listed substances.*** The NPRI will provide reporting facilities the opportunity to track their own releases and transfers off-site in waste. Because the NPRI is a mandatory requirement by law (if the reporting requirements are all met), facilities will become more aware of on-site releases and the movement of material off-site in waste. Can reporting facilities possibly recover material as a result of in-house recovery or through off-site 3R activities? Do all reporting NPRI facilities have environmental management policies or pollution prevention plans?

4. ***To educate the public.*** Community-right-to-know issues have become more prevalent in today's society. The public have become increasing aware of environmental issues which affect them everyday. Issues such as smog, ground level ozone, toxic substances and global warming are an ever increasing concern for the public, as well as scientists around the world. The NPRI provides the necessary tool with which to educate the public, which includes government, about the major importance and ultimate consequences of potentially hazardous substances released into the Canadian environment annually. Up until 1993, there was no specific data-set available to public.

5. ***To establish regulatory initiatives.*** Government will be better educated to establish more effective environmental regulations to protect the public. As stated above, the tracking of substances can now be performed by the publicyear-to-year. Because this data source is now available, governments can make better informed decisions regarding future environmental regulations, as well as in the review of the existing regulatory framework.

1.3 What are Releases and Transfers?

1. Releases

A release is an on-site discharge of a substance into the environment. This includes emissions to air, discharges to surface waters, releases to land within the boundaries of the facility and deep-well injection.

Releases are further sub-divided as follows:

i. Air:

- stack/point
- storage/handling

- fugitive
- spills
- other non-point

ii. Surface Water:

- direct
- spills
- leaks

iii. Land:

- landfill
- land treatment
- spills
- leaks
- other

iv. Underground Injection

Land treatment, also called application farming, is a disposal method in which a waste containing a listed substance is applied or incorporated into soil for biological degradation. Landfills are sites in which wastes are buried. These two disposal methods are generally conducted under permit.

A leak differs from a spill in terms of the time required for an event. Spills normally occur over periods of days to months.

Underground injection is another method of waste disposal. Wastes are injected into geological formations, generally at great depths. This disposal method is also subject to provincial regulation.

2. Transfers As Waste:

A transfer is a shipment of a listed substance in waste to an off site location. Reporting facilities must provide the name and location of the off site facility receiving the shipment. Waste is defined as material that is sent for final disposal or for treatment prior to final disposal. There are seven off-site disposal methods:

- physical treatment, such as encapsulation and vitrification

- chemical treatment, such as stabilization and neutralization

- biological treatment, such as bio-oxidation

- incineration or thermal treatment

- containment in a landfill and other storage, and

- underground injection.

Off-site transfers in waste are reported separately from on-site releases because:

- off-site transfers represent a movement of the substance to a different geographic location than that of the facility

- transfers off-site may not necessarily represent the entry of the substance into the environment

- management of the substance becomes the responsibility of another owner or operator

- reporting on off-site transfers completes information on the fate of the substance, and

- wastes could be transferred a number of times leading to double counting.

The NPRI requires that only the quantity of the listed substance in the waste be reported. Waste materials, such as sludges are often a mixture of many compounds associated with water and other inert material with a small quantity of potentially-hazardous substances. As a result, the total reported to the NPRI may be smaller than the quantity reported in other inventories since only the net weight of a listed substance is reported.

3. Transfers As Recovery, Re-use and Recycling (3Rs):

As with transfers as wastes, the "3Rs" represent a movement of the substance to an off-site facility or location, generally under the jurisdiction of another owner or operator. Facilities were required to report the name and the address of the receiving off-site facility.

The definition of waste for the 1994 reporting year has been modified from that of 1993. For 1994 reporting, waste excluded substances sent for recovery, re-use and recycling. These 3Rs were reported voluntarily by facilities under another section in the reporting forms. In 1993, transfers off site for 3Rs were included under the category "transfer off site in waste.

Generally, materials sent off-site for 3Rs are those transferred to recyclers, such

as metal shavings or turnings, those materials transferred off site for processing, cleaning or reclamation and returned to the facility, and those materials sent back to the suppliers for credit or payment.

Energy recovery is applicable only when recuperated energy from combustion is used as an alternative to fossil fuels or other forms of energy.

1.4 Limitations of the 1993 and 1994 Data Sets

The data submitted by reporting facilities to both the 1993 and 1994 NPRI, as well as for future years, is merely a reflection of release and transfer data submitted by reporting facilities. Both data sets are NOT a reflection of all Canadian releases and transfers for either 1993 or 1994. Furthermore, the NPRI does not attempt to provide information on all releases and transfers found in Canada. The main reason is because not all private and public Canadian facilities meet the reporting criteria from year-to-year.

The data in the 1994 NPRI Summary Report are those found in the 1994 NPRI database as of May 6, 1996. As of this date, a total of 1,713 facilities, representing all major industries in Canada, filed a 1994 NPRI report. In comparison, 1,504 facilities reported to the 1993 NPRI.

Facilities were required to provide information to which they can be reasonably be expected to have access to. The NPRI does not require a reporting facility to perform any form of testing to determine their on-site releases and off-site transfers. It has become apparent however that facilities have chosen direct measurement as a method to verify their reported estimated calculations.

In some instances, this information is readily available from existing monitoring for provincial permits or licences. However, in other cases, a variety of estimation methods can be used depending on the types of information available and the type of industry involved. Facilities are expected to use the most accurate estimation methods for their operations. The lowest reportable unit is 1 kilogram or 0.001 tonne. In declining order of expected accuracy, estimates can be based on direct measurements, mass balances, emission factors or engineering estimates. As a result, reported emissions from facilities in the same sector can differ. Even though one may expect direct measurement to the most accurate form of estimation, the adoption of strict calibration procedures and methodologies will ultimately dictate the highest accuracy of calculation. For example, if a standard reference method was used to determine the concentration of a substance and the required calibration of equipment was not properly performed, how accurate or valid were the results of that method?

Some industrial associations have provided training and additional information to their members to improve the consistency and the quality of submitted reports. It is expected that improvements in estimation methods and familiarity with the

reporting requirements will improve data quality.

The environmental performance of the facility's processes, pollution control equipment and the operational management cannot be determined based on NPRI data alone. Nor do NPRI data allow for the normalization based on production. For example, a facility may have large releases of a substance even though the quantity per unit of production could be significantly lower than another facility. The facility with the highest reported release for a particular substance may not be the "largest" or "worst" environmental performer. This is because of the uncertainty and variability associated with estimation methodologies and the differences between the environments into which substances are released. It is not possible to compare releases to different environments, nor to compare one substance with another.

Risk to human health and the environment from the release of substances cannot be determined from NPRI data alone. Therefore, the annual report does not attempt to characterize the impact of the reported releases and transfers. Although the data are useful as a starting point in identifying potential risks, other information is required before such assessments can be made. The risk will utimately depend on the toxicity of any substance, the extent of the exposure, the type of release and the environmental medium. Large-volume releases of some substances may not necessarily indicate a major environmental impact. Conversely, smaller releases may have significant environmental impact.

1.5 Differences Between the 1993 and 1994 NPRI

The 1993 and 1994 NPRI are virtually identical except for the following highlights and changes:

i. Changes to the 1993 List of Substances

The changes in the list of NPRI substances between the 1993 and 1994 reporting years are few and shown below:

- Deletion of Chloromethyl methyl ether (CAS # 107-30-2)
- Addition of i-Butyl alcohol (CAS # 78-83-1)
- Minor changes in spelling and nomenclature. For example, sulfuric acid modified to sulphuric acid.

ii. Changes to the Reporting Form

A major change occurred with the 1994 NPRI reporting forms. Specifically, the mandatory reporting of recovery, re-use and recycling (3Rs) was removed and a separate section was created strictly for the reporting of 3Rs voluntarily. Reporting facilities were required to report all transfers sent off-site as waste, but were given

the option to report 3R activity. The 3R section was created to illustrate the difference between a transfer in waste and a transfer of a substance off-site for 3R activity.

Other changes which were implemented for 1994 report forms were the following:

- A permanent NPRI identification (ID) number was assigned to each 1993 NPRI reporting facility

- The addition of a facility public contact and of a company co-ordinator is required

- The required parent company information was simplified

- One Canadian and U.S. Standard Classification Code (SIC) is required per facility, and

- Biological and chemical treatment was added as a method of disposal under the waste category.

iii. Software Improvements

The reporting burden of facilities has been a major focus of the NPRI since its' inception early on. Close to 75% of all submitted 1993 NPRI reports were filed electronically on computer diskette. The NPRI Office realized that even a higher percentage would be required for further years. Electronic reporting by facilities ensures that resource and inaccurate reporting implications could be kept to a minimum. The resource requirement to process and verify a computer disk far outweighs the resources required to process paper reporting forms. A much higher success rate for electronic reporting can be realized with a more efficient and easier to use software program. The NPRI software for 1994, as well as 1995, provides a 1993 reporter with the option to upload their previous year's data into the new reporting software. This has greatly reduced a facility's reporting burden, since if a facility is reporting identical substances from year-to-year then only the release and transfer estimates should be modified in the annual reporting forms.

iv. 1993 and 1994 NPRI Reporters

The list of NPRI reporters will change from year-to-year. As facilities improve their processes and operations based on economic conditions, their NPRI reporting status also needs to be reviewed from year-to-year. Presently, a facility's requirement to report to the NPRI and Environment Canada is based solely on the NPRI reporting criteria (10 employees, 10 tonnes and 1% by weight).

As stated earlier a total of 1,504 and 1,713 facilities reported to the NPRI across Canada in 1993 and 1994, respectively. Subsequently, 753 and 864 facilities reported in Ontario in 1993 and 1994, respectively. An 18% increase in Ontario was mainly due to a comprehensive outreach program which was initiated in 1994 by the Ontario Regional NPRI Office. This office notified by mail more that 12,000 facilities regarding the 1994 NPRI.

It should be noted that not all facilities meeting the NPRI requirements filed a NPRI report. This was due mainly to a lack of knowledge about the NPRI by facilities. As people become more aware of the NPRI and its' requirements, more facilities will ultimately be reporting in the future. It has become evident in the past year that because the NPRI information is made available to the public, individuals have notified the NPRI Office in Ontario of potential reporters. A more selected outreach program based on sectors (i.e. SICs) is required by Environment Canada - Ontario Region rather than a broad based outreach program.

Approximately 25-50 facilities which reported to the 1993 NPRI indicated a "non-reporting" status for the 1994 NPRI. In addition, approximately 50-100 facilities which reported in 1993 did not file a report to the 1994 NPRI before the reporting deadline. The Ontario Regional NPRI Office have made several attempts to notify these facilities and to determine their 1994 NPRI reporting status. Many facility contacts have either not replied or filed late reports. In the future, inspections and possible enforcement action to be taken by Environment Canada is being planned.

1.6 Common Reporting Errors - 1993 and 1994 Data Sets

The initial reporting year for the NPRI was 1993. The Ontario Regional NPRI Office provided ~50 NPRI information sessions to the public and reporting facilities between 1993 and 1994. The main focus of the information sessions were to introduce the concepts of the NPRI and to clarify the reporting elements. The information sessions were attended by ~1,000-1,500 participants and many issues were raised throughout.

Since the NPRI Headquarters' Office uploaded and verified all 1993 NPRI reports, it was not known how many of those reports required a review by a NPRI Officer. However, in 1994 all regional offices were expected to receive, upload and verify all reports. All reports were reviewed by NPRI Officers for computer viruses, incomplete fields, paper forms, etc. All data was reviewed and approved for accuracy by the regional offices previous to its' transmission to a central computer mainframe located at the Head Office of Environment Canada. Of the 864 - 1994 NPRI Ontario based reports, approximately 40-50% of those reports needed to be verified by a NPRI Officer. All changes made to a report required final authorization by the facility.

A few examples of "common errors" by reporting facilities include the following:

- A number of facilities did not report their NPRI ID number

- A number of facilities reported SICs which were not consistent with their industrial processes

- A number of facilities used commercial database programs to alter the data files after using the export function of the NPRI software. Therefore, the NPRI "uploading" program did not recognize the data and a review was required

- A number of facilities submitted reports for polymers, i.e. polystyrene. There are no polymers on the NPRI list of substances, only monomers.

- A number of facilities provided incorrect "Statement of Certification" forms

- A number of facilities misunderstood the reporting units as kilograms rather than tonnes. Some reports contained skewed data since the values were 1000X too high (should be reported as tonnes)

- Since "landfill" is found twice on the NPRI reporting forms (i.e. 1993 and 1994)

  under the "release" and "transfer" sections, some facilities misunderstood the

  meaning of each field and reported a quantity twice. Therefore, facilities double-counted their on-site releases and off-site transfers.

2. RELEASES

This section contains much of the release analysis of this report; however, please see sections 4. and 5., on the Canada-Ontario Agreement and Remedial Action Plans respectively, for release analyses related specifically to those programs.

2.1 Regional Perspective: Ontario and Canada

Table 2-1 and Figure 2-1 present the trends of actual and anticipated releases for both Ontario and Canada for the years 1993-1997. Note that the anticipated release amounts for the years 1995-1997 are only projections and are not as accurate as the release amounts for the years 1993-1994.

Table 2-2 and Figures 2-2 and 2-3 present the 1994 releases for Ontario and Canada. Note that in Ontario, 82% of releases were to air, 10% were to land, and 8% were to water. No underground injection was reported in Ontario.

2.2 Ontario Releases

Based on the 1994 NPRI database, a number of facilities reported cities such as: Rexdale, Halton Hills, Weston, Downsview, Agincourt, etc. Because this report analyzes and summarizes the data in the GTA, as well as reviewing other municipalities, various records were modified in the original database before any analysis on release data was performed. Below please find the following modified cities:

- Halton Hills modified to Acton
- Rexdale modified to Etobicoke
- Weston modified to North York
- Downsview modified to North York
- Don Mills modified to North York
- Agincourt modified to Scarborough
- West Hill modified to Scarborough
- Copper Cliff modified to Sudbury
- Malton modified to Mississauga

2.2.1 Top Ten Cities Releasing to all Media, Air, Water and Land.

Tables 2-3 to 2-6 rank the top ten Ontario cities by their releases to all media, air, water, and land respectively. The results are charted in Figures 2-4 to 2-7.

2.2.2 Top Ten Facilities Releasing to Air, Water and Land

Tables 2-7 to 2-9 rank the top ten Ontario facilities by their releases to air, water and land respectively. The results are charted in Figures 2-8 to 2-10.

2.2.3 Top Ten Substances Released to Air, Water and Land

Tables 2-10 to 2-12 rank the top ten substances released in Ontario to air, water and land respectively. The results are charted in Figures 2-11 to 2-13. Tables 2-10 to 2-12 also rank the top facilities releasing each one of the top 10 substances.

2.2.4 Greater Toronto Area (GTA) Releases

Table 2-13 presents the Greater Toronto Area's (GTA's) releases by medium. Total GTA releases were 16,365 metric tonnes, which is 28.6% of Ontario's total releases. The GTA consists of Metro Toronto plus the Regional Municipalities of Halton, Peel, York and Durham.

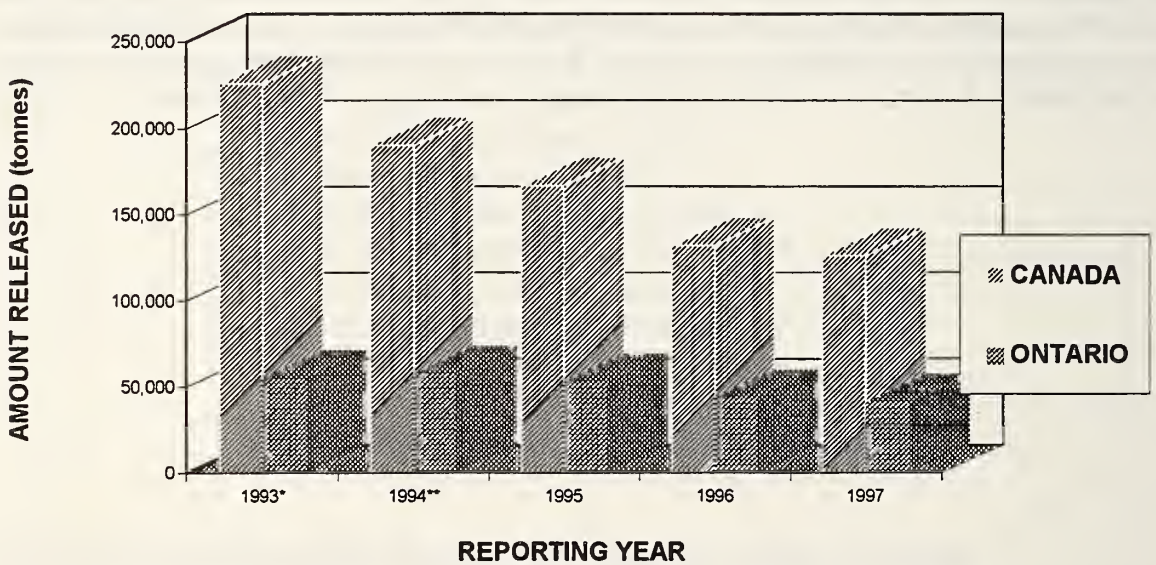
2.2.5 MISA Releases

Table 2-14 presents Ontario releases for 1994 as reported by MISA. MISA stands for Municipal/Industrial Strategy for Abatement, a provincial program dealing with wastewater. The substances in Table 2-14 are the MISA substances that are also in the NPRI. Substances with small releases are lumped into "Others".

TABLE 2-1. NPRI: ONTARIO AND CANADA 1993 - 1997 ACTUAL AND ANTICIPATED RELEASES TREND.

	ACTUAL RELEASES (metric tonnes)		ANTICIPATED RELEASES (metric tonnes)		
	1993*	1994**	1995	1996	1997
ONTARIO	55,083.25	57,191.79	52,614.45	43,594.55	40,701.42
CANADA	225,929.24	190,263.94	166,812.84	132,144.56	126,008.49
ONTARIO %	24%	30%	32%	33%	32%

FIGURE 2-1. NPRI: ONTARIO AND CANADA 1993 - 1997 ACTUAL AND ANTICIPATED RELEASES TREND.



* IN 1993, THERE WERE 990 CANADIAN FACILITIES REPORTING RELEASES, OF WHICH 487 WERE IN ONTARIO

** IN 1994, THERE WERE 1047 CANADIAN FACILITIES REPORTING RELEASES, OF WHICH 570 WERE IN ONTARIO

TABLE 2-2. NPRI 1994: ONTARIO AND CANADA RELEASES BY MEDIUM.

	TOTAL RELEASES* (tonnes)	AIR RELEASES (tonnes)	UNDERGROUND INJECTION (tonnes)	WATER RELEASES (tonnes)	LAND RELEASES (tonnes)	UNSPECIFIED RELEASES** (tonnes)
ONTARIO	57,191.79	46,733.90	0.00	4,465.83	5,860.86	131.20
CANADA	190,263.94	106,185.28	14,264.87	55,469.72	14,087.65	256.42
ONTARIO %	30%	44%	0%	8%	42%	51%

* THERE WERE 1047 CANADIAN FACILITIES REPORTING RELEASES, OF WHICH 570 WERE IN ONTARIO.
** IF A FACILITY RELEASED A SUBSTANCE IN A QUANTITY OF LESS THAN ONE TONNE, THE FACILITY DID NOT HAVE TO REPORT THE RELEASE TO EACH MEDIUM FOR THAT SUBSTANCE.

FIGURE2-2. NPRI 1994: ONTARIO AND CANADA TOTAL RELEASES.

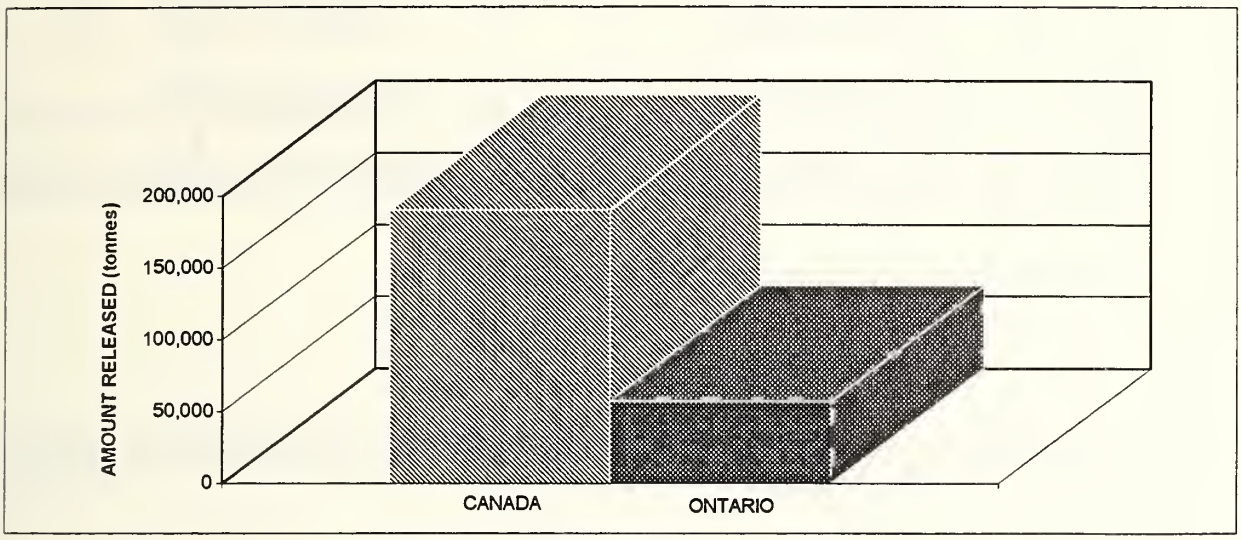


FIGURE 2-3. NPRI 1994: ONTARIO AND CANADA RELEASES BY MEDIUM.

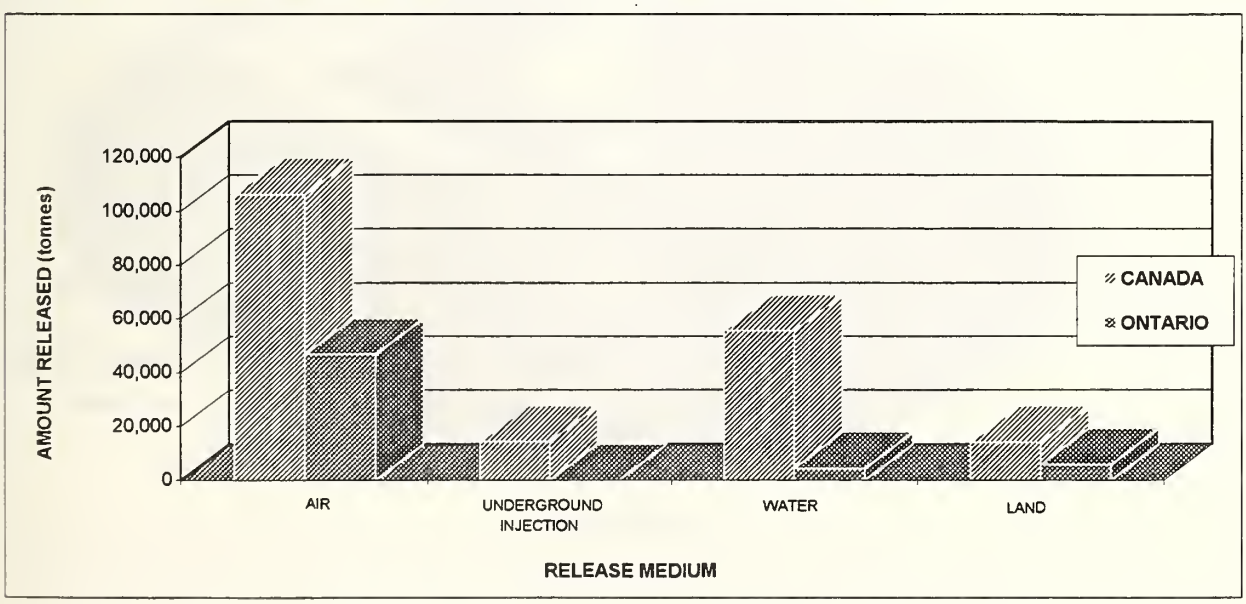


TABLE 2-3. NPRI 1994: ONTARIO RELEASES TO ALL MEDIA - TOP 10 CITIES.

RANKING	CITY*	TOTAL RELEASES (metric tonnes)	NO. OF FACILITIES
1	SARNIA	5,001.13	9
2	SUDBURY	3,551.44	5
3	CORUNNA	3,266.30	7
4	WINDSOR	2,698.09	15
5	MARATHON	2,421.89	4
6	OSHAWA	2,414.53	4
7	SAULT STE. MARIE	2,236.87	1
8	MISSISSAUGA	2,210.83	46
9	WHITBY	2,036.25	5
10	SCARBOROUGH	1,940.03	27
	OTHER CITIES	29,414.43	
	TOTAL RELEASES	57,191.79	

*THERE WERE 146 CITIES THAT REPORTED RELEASES.

FIGURE2- 4. NPRI 1994: ONTARIO RELEASES TO ALL MEDIA - TOP 10 CITIES.

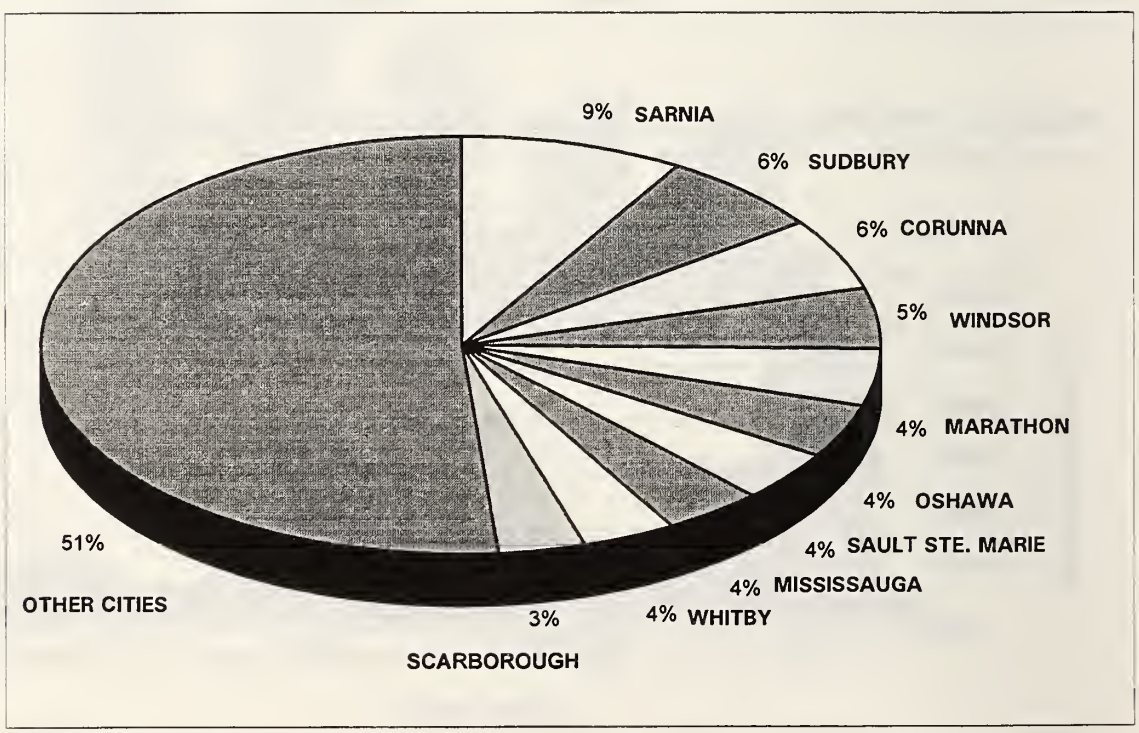


TABLE 2-4. NPRI 1994: ONTARIO AIR RELEASES - TOP TEN CITIES.

RANKING	CITY	AIR RELEASES (metric tonnes)	NO. OF FACILITIES
1	SARNIA	4,924.94	9
2	SUDBURY	3,520.55	4
3	CORUNNA	3,226.40	5
4	WINDSOR	2,625.53	11
5	OSHAWA	2,413.74	4
6	SCARBOROUGH	1,928.71	21
7	BRAMPTON	1,853.36	17
8	AMHERSTBURG	1,477.99	2
9	COURTRIGHT	1,392.63	1
10	HAMILTON	1,278.00	12
	OTHER CITIES	22,092.04	
	TOTAL RELEASES TO AIR	46,733.89	

FIGURE 2-5. NPRI 1994: ONTARIO AIR RELEASES - TOP TEN CITIES.

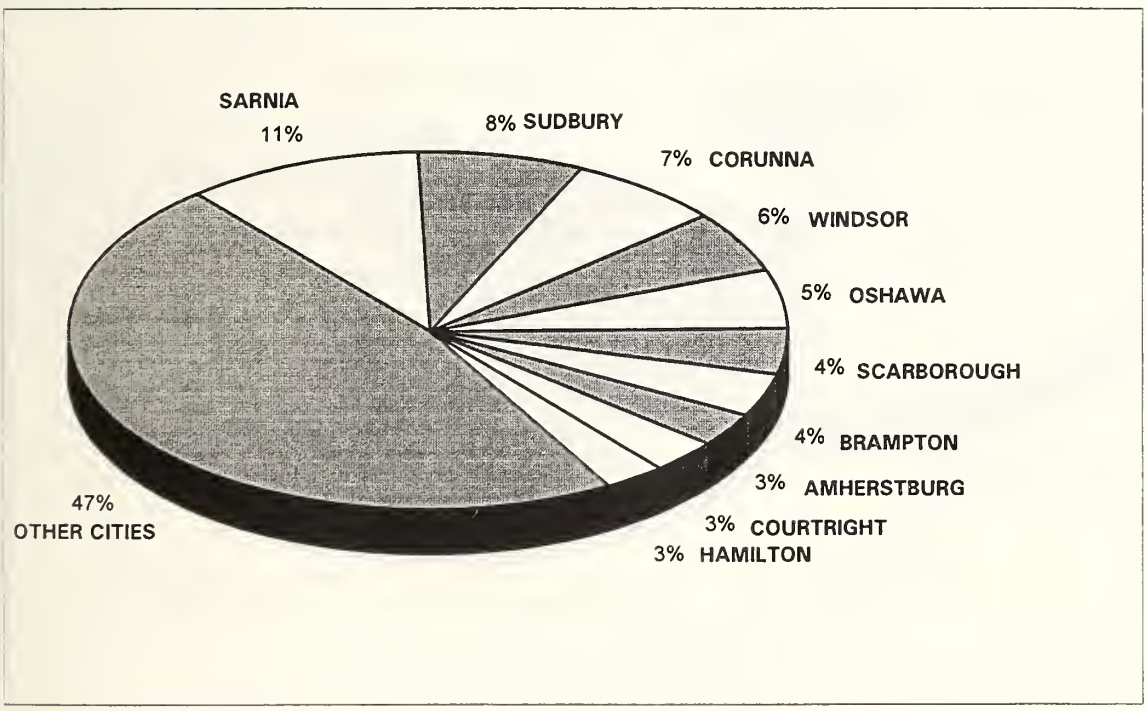


TABLE 2-5. NPRI 1994: ONTARIO WATER RELEASES - TOP TEN CITIES.

RANKING	CITY	WATER RELEASES (metric tonnes)	NO. OF FACILITIES
1	MARATHON	2,272.65	4
2	CORNWALL	453.52	3
3	SAULT STE. MARIE	451.39	1
4	AMHERSTBURG	158.50	1
5	BRUCE TOWNSHIP	129.64	1
6	PETERBOROUGH	125.20	1
7	KENORA	120.00	1
8	HAMILTON	105.27	2
9	KINGSTON	86.76	1
10	AUGUSTA	84.35	1
	OTHER CITIES	478.55	
	TOTAL RELEASES TO WATER	4,465.84	

FIGURE 2-6. NPRI 1994: ONTARIO WATER RELEASES - TOP TEN CITIES.

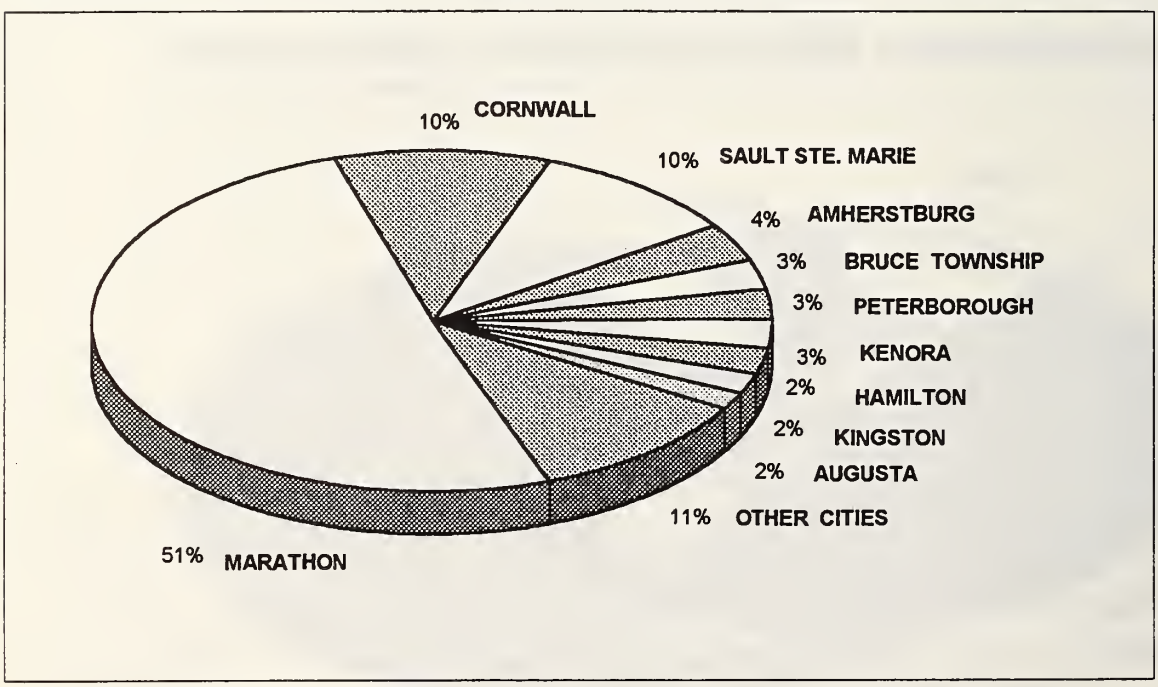


TABLE2- 6. NPRI 1994: ONTARIO LAND RELEASES - TOP TEN CITIES.

RANKING	CITY	LAND RELEASES (metric tonnes)	NO. OF FACILITIES
1	WHITBY	1,858.00	1
2	SAULT STE. MARIE	1,398.96	1
3	MISSISSAUGA	944.54	7
4	NANTICOKE	702.00	1
5	ASTRA	160.00	1
6	STRATFORD	138.46	2
7	OTTAWA	135.81	1
8	WELLAND	113.54	1
9	GUELPH	81.62	3
10	SARNIA	57.59	2
	OTHER CITIES	270.33	
	TOTAL RELEASES TO LAND	5,860.85	

FIGURE2- 7. NPRI 1994: ONTARIO LAND RELEASES - TOP TEN CITIES.

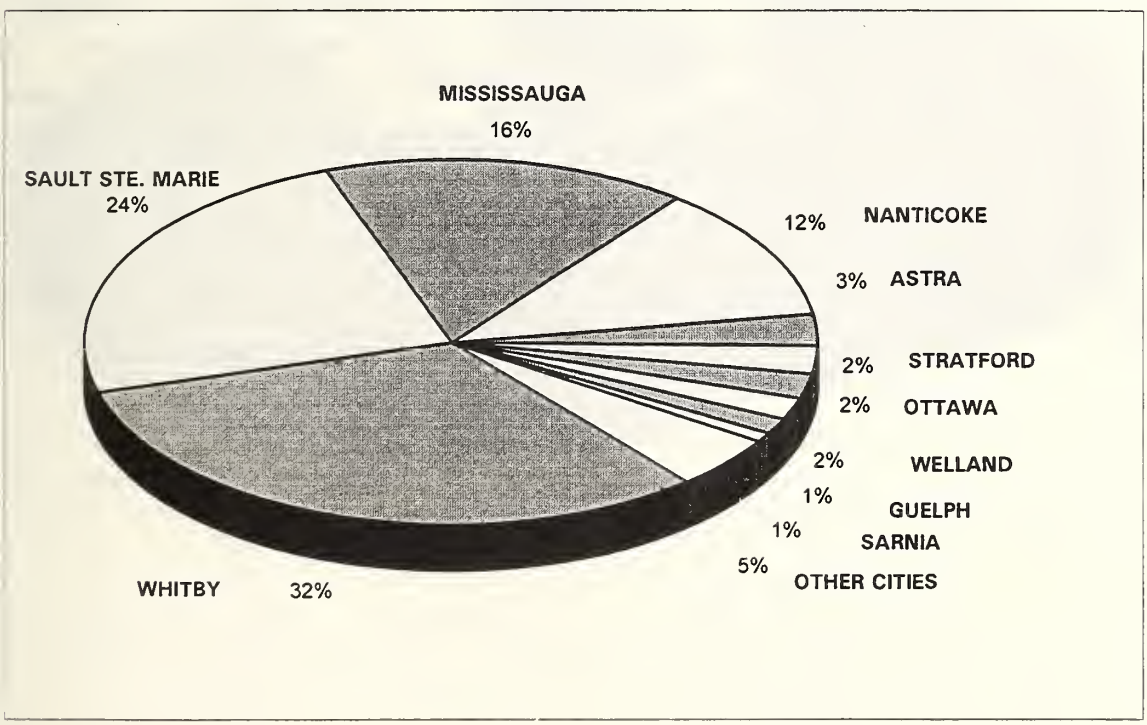


TABLE2- 7. NPRI 1994: ONTARIO AIR RELEASES - TOP TEN FACILITIES.

RANKING	NPRI ID	FACILITIY NAME	CITY	AIR RELEASES (metric tonnes)
1	444	INCO LIMITED COPPER CLIFF SMELTER	COPPER CLIFF	3,152.97
2	1944	POLYSAR RUBBER CORPORATION	SARNIA	2,669.75
3	4700	NOVACOR CHEMICALS - S.C.R.S.	CORUNNA	2,075.26
4	1290	GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	1,475.13
5	2233	TERRA LAMBTON WORKS	COURTRIGHT	1,392.63
6	1269	ESSEX ALUMINUM PLANT	WINDSOR	1,147.55
7	3893	GENERAL MOTORS OF CANADA LIMITED, CAR PLANT - AUTOPLEX	OSHAWA	1,139.09
8	930	AVENOR INC - THUNDER BAY	THUNDER BAY	1,108.05
9	2176	STANDARD PRODUCTS (CANADA) LTD. - RUBBER PLANT #1	STRATFORD	1,028.00
10	3476	WINDSOR ASSEMBLY PLANT	WINDSOR	1,017.90
		OTHER FACILITIES		30,527.56
		TOTAL RELEASES TO AIR		46,733.89

FIGURE 2-8. NPRI 1994: ONTARIO AIR RELEASES - TOP TEN FACILITIES.

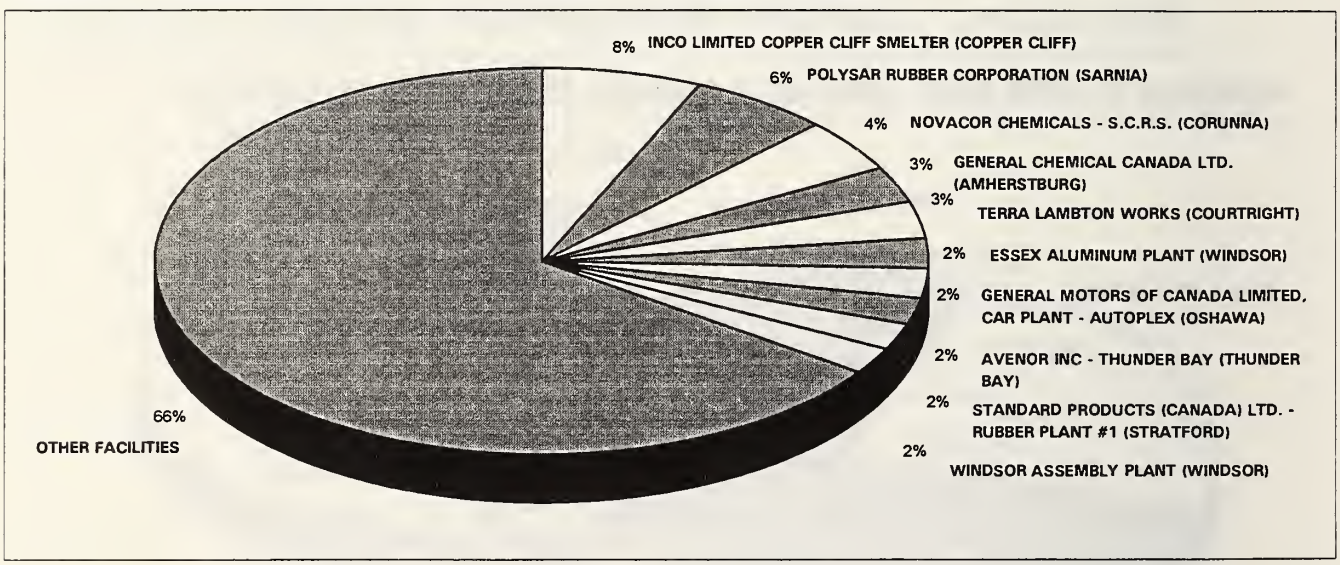


TABLE 2-8. NPRI 1994: ONTARIO WATER RELEASES - TOP 10 FACILITIES.

RANK	NPRI I.D.	FACILITY NAME	CITY	TOTAL WATER RELEASES (metric tonnes)
1	462	JAMES RIVER-MARATHON, LTD.	MARATHON	2,271.00
2	1070	ALGOMA STEEL INC	SAULT STE. MARIE	451.39
3	1197	DOMTAR SPECIALTY FINE PAPERS	CORNWALL	438.00
4	1290	GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	158.50
5	3808	BRUCE NUCLEAR POWER DEVELOPMENT	BRUCE TOWNSHIP	129.64
6	201	PTBO WASTE WATER TREATMENT PLANT	PETERBOROUGH	125.20
7	4030	BOISE CASCADE CANADA LTD	KENORA	120.00
8	3422	DUPONT CANADA INC.	KINGSTON	86.76
9	1207	DUPONT CANADA INC.	AUGUSTA	84.35
10	3416	FORD OF CANADA CASTING PLANT	WINDSOR	70.10
		OTHER FACILITIES		530.89
		TOTAL RELEASES TO WATER		4,465.84

FIGURE 2-9. NPRI 1994: ONTARIO WATER RELEASES - TOP 10 FACILITIES.

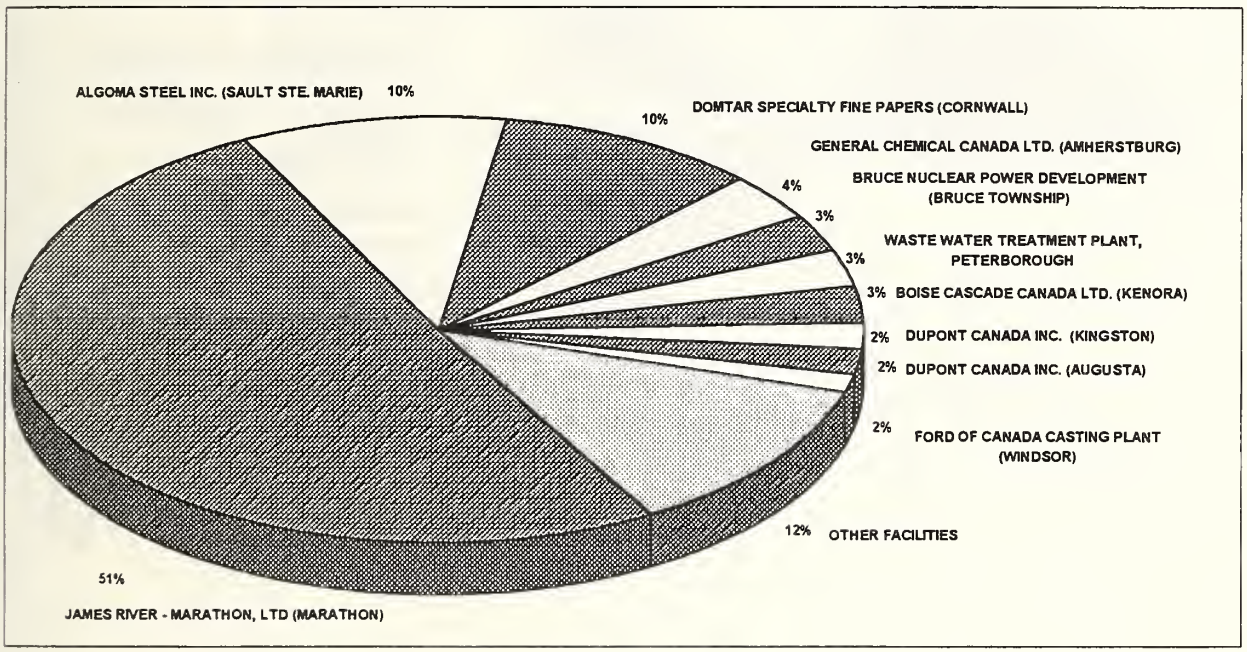


TABLE2- 9. NPRI 1994: ONTARIO LAND RELEASES - TOP TEN FACILITIES.

RANKING	NPRI ID	FACILITY NAME	CITY	LAND RELEASES (metric tonnes)
1	3824	CO-STEEL LASCO	WHITBY	1,858.00
2	1070	ALGOMA STEEL INC	SAULT STE. MARIE	1,398.96
3	3855	STELCO LAKE ERIE WORKS	NANTICOKE	702.00
4	4451	CANADIAN AIRLINES - PEARSON AIRPORT	MISSSISSAUGA	401.00
5	1026	TORONTO INTERNATIONAL AIRPORT	TORONTO	346.41
6	1427	HUDSON GENERAL AVIATION SERVICES INC	MISSISSAUGA	162.00
7	744	CFB TRENTON	ASTRA	160.00
8	1006	OTTAWA INTERNATIONAL AIRPORT	OTTAWA	135.81
9	3158	ATLAS SPECIALTY STEELS	WELLAND	113.54
10	4489	COOPER AUTOMOTIVE PRODUCTS WAGNER DIV.	STRATFORD	105.84
		OTHER FACILITIES		477.29
		TOTAL RELEASES TO LAND		5,860.85

FIGURE 2-10. NPRI 1994: ONTARIO LAND RELEASES - TOP TEN FACILITIES.

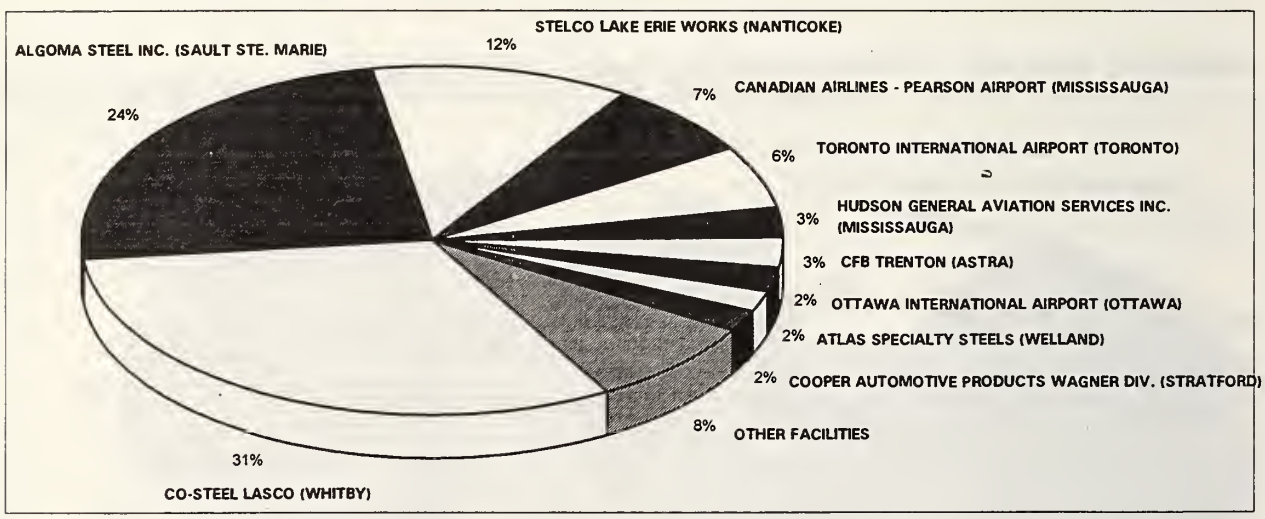


TABLE2- 10 . NPRI 1994: TOP 10 NPRI SUBSTANCES RELEASED TO AIR IN ONTARIO,AND THE TOP FACILITIES RELEASING EACH

RANK	SUBSTANCE NAME	TOTAL AIR RELEASES (tonnes)	NO. OF FACIL.	TOP FACILITIES				
				Rank	NPRI ID	Name	City	Air Release (tonnes)
1	XYLENE (MIXED ISOMERS)	6,305.90	107					
				1	2176	STANDARD PRODUCTS (CANADA) LTD. - RUBBER PLANT #1	STRATFORD	1,028.00
				2	3476	WINDSOR ASSEMBLY PLANT	WINDSOR	595.03
				3	3893	GENERAL MOTORS OF CANADA LIMITED, CAR PLANT - AUTOPLEX	OSHAWA	512.99
				4	3201	3M PERTH, ONTARIO PLANT SITE	PERTH	391.86
				5	3870	GENERAL MOTORS OF CANADA LIMITED, TRUCK PLANT - AUTOPLEX	OSHAWA	366.50
				6	3419	OAKVILLE ASSEMBLY PLANT	OAKVILLE	201.00
				7	733	PAINTPLAS (1989) INC.	AJAX	200.80
2	TOLUENE	5,630.83	112					
				1	3447	QUEBECOR PRINTING PE&E	ETOBICOKE	417.87
				2	3201	3M PERTH, ONTARIO PLANT SITE	PERTH	353.31
				3	2263	SUNWORTHY WALLCOVERINGS (DIV. OF BORDEN CO)	BRAMPTON	352.80
				4	3198	3M LONDON, ONTARIO PLANT SITE	LONDON	307.98
				5	3893	GENERAL MOTORS OF CANADA LIMITED, CAR PLANT - AUTOPLEX	OSHAWA	241.55
				6	1215	ONTARIO TRUCK	OAKVILLE	181.13
				7	4496	DURABLA CANADA	BELLEVILLE	167.00
				8	2656	PEBRA	PETERBOROUGH	151.32
				9	2423	FASSON CANADA INC.	AJAX	148.50
				10	4518	LAWSON MARDON FLEXIBLE PACKAGING	NORTH YORK	142.68
				11	3419	OAKVILLE ASSEMBLY PLANT	OAKVILLE	140.74
				12	3870	GENERAL MOTORS OF CANADA LIMITED, TRUCK PLANT - AUTOPLEX	OSHAWA	132.74
				13	1815	OSF INC.	NORTH YORK	131.32
3	AMMONIA	4,605.72	39					
				1	1290	GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	1,474.50
				2	2233	TERRA LAMBTON WORKS	COURTRIGHT	1,384.00
				3	3807	NUTRITE INC. - NITROGEN DIVSION (FORMERLY NITROCHEM INC.)	MAITLAND	767.17
				4	1467	INCO LIMITED NICKEL REFINERY	SUDBURY	222.60
				5	1207	DUPONT CANADA INC. MAITLAND SITE	AUGUSTA	166.80
4	METHANOL	3,819.09	69					
				1	930	AVENOR INC - THUNDER BAY	THUNDER BAY	899.80
				2	3553	SURPASS WEST HILL PLANT	SCARBOROUGH	767.00
				3	928	AVENOR INC.	DRYDEN	408.99
				4	2607	KIMBERLY CLARK FOREST PRODUCTS, INC.	TERRACE BAY	274.11
				5	1687	NESTE RESINS CANADA	NORTH BAY	265.60

table continued on next page...

TABLE 2-10 . NPRI 1994: TOP 10 NPRI SUBSTANCES RELEASED TO AIR IN ONTARIO, AND THE TOP FACILITIES RELEASING EACH

...table continued from previous page

RANK	SUBSTANCE NAME	TOTAL AIR RELEASES (tonnes)	NO. OF FACIL.	TOP FACILITIES				
				Rank	NPRI ID	Name	City	Air Release (tonnes)
5	METHYL ETHYL KETONE	3,497.47	62					
				1	3475	CANADIAN GENERAL-TOWER LTD.	CAMBRIDGE	673.65
				2	741	MORBERN INCORPORATED	CORNWALL	440.00
				3	3580	CAMVAC CANADA, A DIVISION OF REXHAM CANADA LTD.	BRANTFORD	425.00
				4	2263	SUNWORTHY WALLCOVERINGS (DIV. OF BORDEN CO)	BRAMPTON	385.80
				5	3476	WINDSOR ASSEMBLY PLANT	WINDSOR	209.14
6	SULPHURIC ACID	2,900.86	23					
				1	444	INCO LIMITED COPPER CLIFF SMELTER	SUDBURY	2,652.00
7	CYCLOHEXANE	2,529.19	14					
				1	4700	NOVACOR CHEMICALS - S.C.R.S.	CORUNNA	1,960.00
				2	1944	POLYSAR RUBBER CORPORATION	SARNIA	270.50
				3	1207	DUPONT CANADA INC. MAITLAND SITE	AUGUSTA	193.70
8	BENZENE	2,029.73	17					
				1	3713	DOFASCO INC.	HAMILTON	451.78
				2	1944	POLYSAR RUBBER CORPORATION	SARNIA	319.00
				3	2984	STELCO HILTON WORKS	HAMILTON	283.60
				4	1070	ALGOMA STEEL INC	SAULT STE. MARIE	238.13
				5	1785	NOVACOR CHEMICALS - SARNIA SITE	SARNIA	187.60
9	DICHLOROMETHANE	1,613.52	15					
				1	2469	NOVOPHARM LIMITED	SCARBOROUGH	510.50
				2	4428	VALLE FOAM INDUSTRIES INC.	BRAMPTON	247.39
				3	2567	CARPENTER CANADA LTD	WOODBRIDGE	240.00
				4	4552	VITAFOAM PRODUCTS CANADA LTD.	NORTH YORK	205.96
				5	2422	FOAMEX CANADA INC.	ETOBICOKE	109.47
10	ISOPROPYL ALCOHOL	1,391.05	65					
				1	3580	CAMVAC CANADA, A DIVISION OF REXHAM CANADA LTD.	BRANTFORD	222.00
				2	3198	3M LONDON, ONTARIO PLANT SITE	LONDON	122.69
				3	2125	SHELL CANADA PRODUCTS LTD - CHEMICAL	CORUNNA	109.46
				4	2469	NOVOPHARM LIMITED	SCARBOROUGH	70.73
				5	3893	GENERAL MOTORS OF CANADA LIMITED, CAR PLANT - AUTOPLEX	OSHAWA	69.80
				6	566	CUSTOM MEDALLION INC.	MISSISSAUGA	55.41
				7	3201	3M PERTH, ONTARIO PLANT SITE	PERTH	52.79

FIGURE 2-11. NPRI 1994: ONTARIO AIR RELEASES - TOP 10 SUBSTANCES

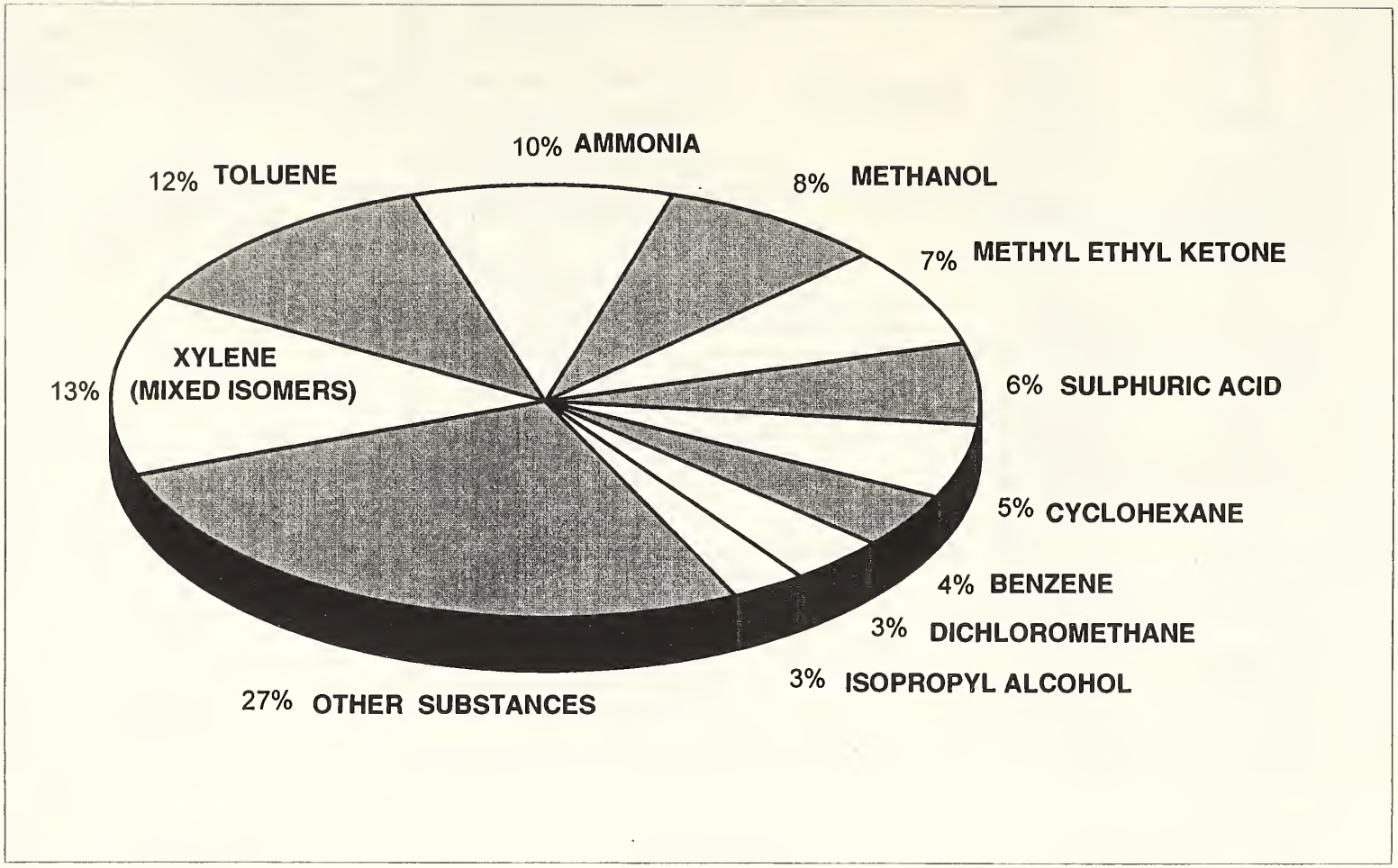


TABLE 2-11. NPRI 1994: TOP 10 NPRI SUBSTANCES RELEASED TO WATER IN ONTARIO, AND THE TOP FACILITIES RELEASING EACH.

RANK	SUBSTANCE NAME	TOTAL WATER RELEASES TONNES)	NO. OF FACIL.	TOP FACILITIES				
				Rank	NPRI ID	Facility	City	Water Release (Tonnes)
1	METHANOL	2865.188	7	1	462	JAMES RIVER-MARATHON, LTD.	MARATHON	2,271.00
				2	1197	DOMTAR SPECIALTY FINE PAPERS	CORNWALL	438.00
				3	4030	BOISE CASCADE CANADA LTD	KENORA	120.00
2	AMMONIA	948.037	22	1	1070	ALGOMA STEEL INC	SAULT STE. MARI	448.95
				2	1290	GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	158.50
				3	201	PTBO WASTE WATER TREATMENT PLANT	PETERBOROUGH	122.60
				4	3807	NUTRITE INC. - NITROGEN DIVSION (FORMERLY NITROCHEM I	MAITLAND	36.80
				5	2984	STELCO HILTON WORKS	HAMILTON	35.50
3	SULPHURIC ACID	244.523	5	1	3808	BRUCE NUCLEAR POWER DEVELOPMENT	BRUCE TOWNSHI	129.64
				2	3422	DUPONT CANADA INC. - KINGSTON SITE	KINGSTON	85.00
				3	3163	DARLINGTON NUCLEAR GENERATING STATION	DARLINGTON	26.63
				4	3807	NUTRITE INC. - NITROGEN DIVSION (FORMERLY NITROCHEM I	MAITLAND	2.50
				5	3161	PICKERING NUCLEAR DIVISION	PICKERING	0.76
4	ETHYLENE GLYCOL	58.904	8	1	3713	DOFASCO INC.	HAMILTON	27.74
				2	3855	STELCO LAKE ERIE WORKS	NANTICOKE	10.95
				3	2984	STELCO HILTON WORKS	HAMILTON	7.40
				4	775	QUNO CORPORATION	THOROLD	5.00
				5	928	AVENOR INC.	DRYDEN	4.80
5	ZINC (FUME OR DUST)	57.032	2	1	3416	WINDSOR CASTING PLANT	WINDSOR	57.00
6	ISOPROPYL ALCOHOL	45.855	2	1	3198	3M LONDON, ONTARIO PLANT SITE	LONDON	45.42
7	AMMONIUM NITRATE (SOLUTIO	42.500	2	1	2233	TERRA LAMBTON WORKS	COURTRIGHT	39.50
8	NICKEL (AND ITS COMPOUNDS)	29.257	8	1	1465	INCO LIMITED CENTRAL MILLS	SUDBURY	23.09
9	ZINC (AND ITS COMPOUNDS)	28.653	21	1	3713	DOFASCO INC.	HAMILTON	9.10
				2	2972	GECO DIVISION - MILL,PLANT SITE,TAILINGS	MANITOUWADGE	7.44
				3	2815	KIDD CREEK METALLURGICAL SITE	HOYLE	4.34
				4	2984	STELCO HILTON WORKS	HAMILTON	2.43
				5	1944	POLYSAR RUBBER CORPORATION	SARNIA	1.40
10	NITRIC ACID	25.000	1	1	1207	DUPONT CANADA INC. MAITLAND SITE	AUGUSTA	25.00

TABLE 2-12. NPRI 1994: TOP 10 NPRI SUBSTANCES RELEASED TO LAND IN ONTARIO, AND THE TOP FACILITIES RELEASING EACH.

RANK	SUBSTANCE NAME	TOTAL LAND RELEASES (TONNES)	NO. OF FACIL.	TOP FACILITIES				
				Rank	NPRI ID	Facility	City	Land Release (Tonnes)
1	MANGANESE (AND ITS COMPOUNDS)	1906.28	9	1	1070	ALGOMA STEEL INC	SAULT STE. MARIE	1,168.29
				2	3855	STELCO LAKE ERIE WORKS	NANTICOKE	702.00
2	ETHYLENE GLYCOL	1281.80	11	1	4451	CANADIAN AIRLINES - PEARSON AIRPORT	MISSISSAUGA	401.00
				2	1026	TORONTO INTERNATIONAL AIRPORT	MISSISSAUGA	346.41
				3	1427	HUDSON GENERAL AVIATION SERVICES INC	MISSISSAUGA	162.00
				4	744	CFB TRENTON	ASTRA	160.00
				5	1006	OTTAWA INTERNATIONAL AIRPORT	OTTAWA	135.81
3	ZINC (AND ITS COMPOUNDS)	964.81	15	1	3824	CO-STEEL LASCO	WHITBY	725.00
				2	1070	ALGOMA STEEL INC	SAULT STE. MARIE	193.00
4	COPPER (AND ITS COMPOUNDS)	912.18	10	1	3824	CO-STEEL LASCO	WHITBY	880.00
5	LEAD (AND ITS COMPOUNDS)	226.84	6	1	3824	CO-STEEL LASCO	WHITBY	220.00
6	ASBESTOS	214.52	4	1	4489	COOPER AUTOMOTIVE PRODUCTS WAGNER DIV.	STRATFORD	105.84
				2	3146	DOW CHEMICAL CANADA INC. - SARNIA	SARNIA	57.08
				3	1207	DUPONT CANADA INC. MAITLAND SITE	AUGUSTA	40.80
				4	4496	DURABLA CANADA	BELLEVILLE	10.80
7	CHROMIUM (AND ITS COMPOUNDS)	149.59	8	1	3158	ATLAS SPECIALTY STEELS	WELLAND	89.00
				2	3824	CO-STEEL LASCO	WHITBY	33.00
				3	1070	ALGOMA STEEL INC	SAULT STE. MARIE	20.90
8	HYDROCHLORIC ACID	62.40	3	1	215	COURT GALVANIZING LTD	GUELPH	51.00
				2	1070	ALGOMA STEEL INC	SAULT STE. MARIE	5.90
				3	2984	STELCO HILTON WORKS	HAMILTON	5.50
9	BIS(2-ETHYLHEXYL) PHTHALATE	55.85	2	1	87	ACCUFLEX INDUSTRIAL HOSE LTD.	GUELPH	28.85
				2	3787	KURIYAMA CANADA INC.	BRANTFORD	27.00
10	NICKEL (AND ITS COMPOUNDS)	31.66	6	1	1471	INCO LIMITED PORT COLBORNE REFINERY	PORT COLBORNE	22.60
				2	1070	ALGOMA STEEL INC	SAULT STE. MARIE	5.99

FIGURE 2-12. NPRI 1994: ONTARIO WATER RELEASES - TOP 10 SUBSTANCES.

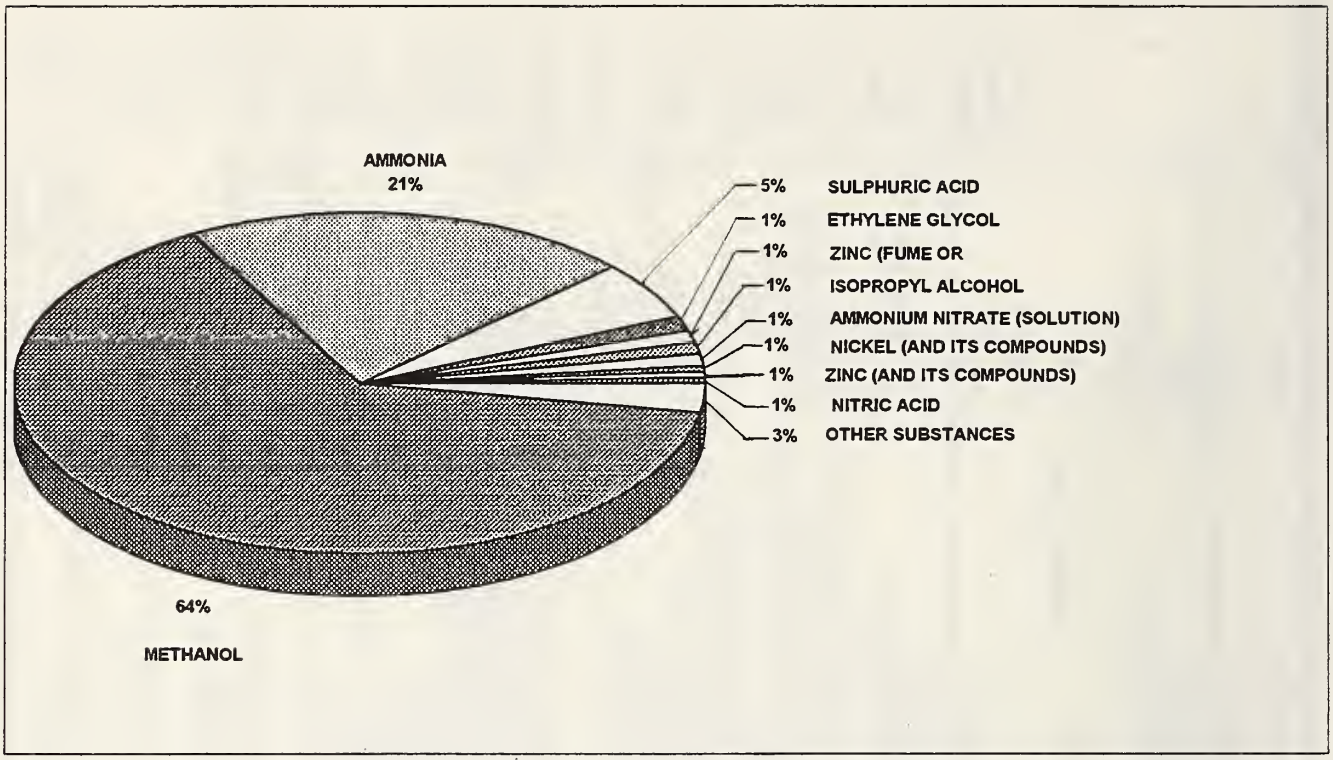


FIGURE 2-13. NPRI 1994: ONTARIO LAND RELEASES - TOP 10 SUBSTANCES.

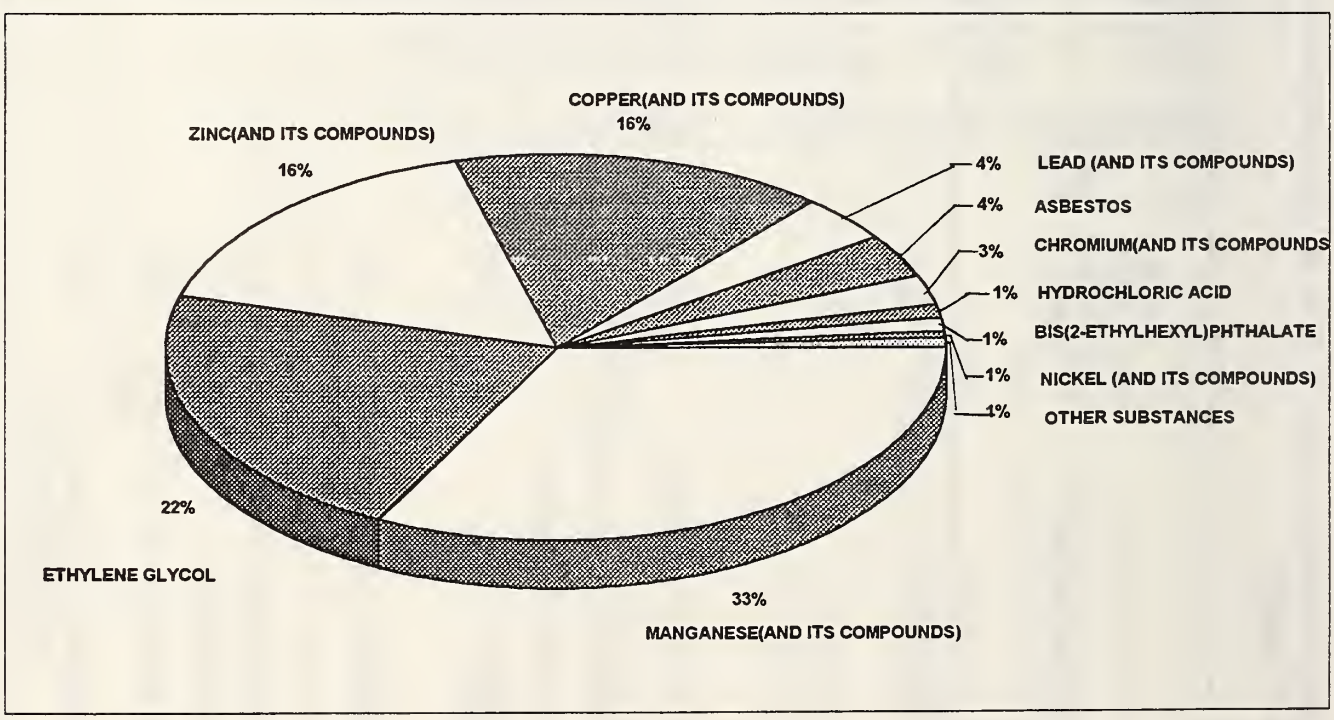


TABLE 2-13.
NPRI 1994: RELEASES TO EACH MEDIUM IN THE GREATER TORONTO AREA.

MEDIUM	TONNAGE OF NPRI SUBSTANCES RELEASED (metric tonnes)	NUMBER OF NPRI FACILITIES RELEASING*
Air	13,449	181
Water	34	8
Land	2,814	17
Unspecified**	67	
TOTAL	16,365	258

* Some facilities release to more than one medium, and are counted more than once for the different media below; however, under "TOTAL", facilities are counted once only.

** Some facilities with small releases provide only a total release amount for all media.

TABLE 2-14. MISA DISCHARGE OF NPRI SUBSTANCES, 1994 DATA

RANK	NPRI SUBSTANCES	DISCHARGE TONNES/YR	NO. OF FACILITIES
1	PHOSPHORUS	8,166.73	83
2	AMMONIA	2,880.28	62
3	NICKEL	93.50	39
4	CHLORINE	53.39	3
5	ZINC	40.42	46
6	COPPER	29.68	43
7	CYANIDE	23.17	40
8	KETONES	19.49	1
9	CHLOROFORM	13.94	28
10	PHENOL	7.48	27
11	LEAD	6.67	43
12	ARSENIC	6.40	31
13	MANGANESE	5.43	5
14	MERCURY	4.57	16
15	CARBON TETRACHLORIDE	4.38	2
16	ANTIMONY	2.15	4
17	CHROMIUM	2.12	11
18	TOLUENE	1.20	32
19	COBALT	0.92	5
20	CADMIUM	0.23	18
	OTHERS	0.38	23

3. TRANSFERS

3.1 Regional Perspective: Ontario and Canada

3.1.1 Actual Transfers

Table 3-3 and Figures 3-3 & 3-4 provide a summary of 1994 transfer data for both Canada and Ontario. The data is summarized as follows: total transfers, energy recovery, recovery/reuse/recycling (3Rs) and transfers in waste. Across Canada, a total of 64,301 tonnes was transferred off-site for waste, i.e. for final disposal or for treatment prior to final disposal. In Ontario, facilities reported approximately 27,400 tonnes sent off-site as waste (~43%). Other Ontario transfers included 39.44% and 29.26% sent off-site for 3R activity and energy recovery, respectively.

3.1.2 Anticipated Transfers

Refer to Table 3-2 and Figure 3-2 for a comparison of anticipated 3R activity. Ontario transfers as 3Rs (i.e. recovery, re-use and recycling) has increased ~2.0% between 1993 and 1994. For future years, 1995-1997, the percentage of material sent off-site for 3Rs remains fairly consistent at ~39%. This is quite remarkable if one compares the total 3R amount provided between 1993 and 1994. For 1993, Ontario based facilities showed ~22,000 tonnes transferred for 3Rs, while in Canada the value was approximately 89,000 tonnes. In 1994, there was a substantial increase in 3R activity: 114,227 and 290,916 tonnes for Ontario and Canada, respectively. For years 1995-1997, the level of 3Rs remain fairly steady at ~100,000 and ~250,000 tonnes for Ontario and Canada, respectively.

Refer to Table 3-1 and Figure 3-1 for a comparison of anticipated transfers sent off-site as waste. In 1993, Ontario based facilities reported 13,537 tonnes transfer off-site as waste or ~15% of the Canadian total. For 1994-1997, Ontario based transfers sent off-site in waste contributed ~50% of the Canadian total. Transfers in waste from Ontario facilities remained fairly consistent at ~30,000 tonnes. The amount of material sent off-site as waste in Ontario increased by almost double (i.e. 13,537 tonnes in 1993 to 27,393 tonnes in 1994), which may ultimately be attributed to an increase of more than 100 Ontario based facilities that reported to the 1994 NPRI. It should be note that the projections for 1995-1997 were based strictly on judgement by some facilities and therefore be used only as a guideline. In Canada, the national total for transfers sent off-site in waste levels off by approximately 5,000 tonnes when one compares 1994 and 1997 values.

3.2 Ontario Transfers

Based on the 1994 NPRI database, a number of facilities reported cities such

as: Rexdale, Halton Hills, Weston, Downsview, Agincourt, etc. Because this report analyzes and summarizes the data in the GTA, as well as reviewing other municipalities, various records were modified in the original database before any analysis on transfer data was performed. Below please find the following modified cities:

- Halton Hills modified to Acton
- Rexdale modified to Etobicoke
- Weston modified to North York
- Downsview modified to North York
- Don Mills modified to North York
- Agincourt modified to Scarborough
- West Hill modified to Scarborough
- Copper Cliff modified to Sudbury
- Malton modified to Mississauga

3.2.1 Top Ten Cities: Energy Recovery, 3Rs and Waste

Refer to Tables 3-4 to 3-6 and Figures 3-5 to 3-7 for a summary of the top ten Ontario cities contributing to transfers off-site for energy recovery, 3Rs and waste.

London (331 tonnes) and the City of Windsor (256 tonnes) contributed the highest transfers of material sent off-site for energy recovery. Mississauga ranked third at 159 tonnes. It should be noted that 26 Mississauga facilities reported energy recovery activities, while London and Windsor showed 14 and 17 facilities, respectively.

Cambridge (32,172 tonnes) and Stoney Creek (20,111 tonnes) contributed by far the largest amount of material transferred off-site for 3R activities. The City of Maple ranked third at 6,592 tonnes.

Hamilton (6,257 tonnes) and the City of Etobicoke (5,394 tonnes) contributed the highest two rankings for the transfer of material off-site in waste. Mississauga ranked third at 1,818 tonnes.

3.2.2 Top Ten Facilities: Energy Recovery, 3Rs and Waste

Refer to Tables 3-7 to 3-9 and Figures 3-8 to 3-10 for a summary of the top ten Ontario facilities contributing to transfers off-site for energy recovery, 3Rs and waste.

Oakside Chemicals Limited (278 tonnes) and the Windsor Assembly Plant (153 tonnes) contributed the highest transfers of material sent off-site for energy recovery. Rhone-Poulenc Specialty Chemicals ranked third at 116 tonnes.

Hayes Dana Inc. (Filter Division) (30,693 tonnes) and A.W. Compounders (20,000 tonnes) contributed by far the highest amount of material transferred off-site for 3R activities. Exide Canada ranked third at 6,592 tonnes.

Samuel Bingham Company (5,081 tonnes) and Dofasco Inc. (2,669 tonnes) provided the highest two rankings for the transfer of material off-site in waste. Slater Steels, H.S.B. Division ranked third at 2,248 tonnes.

3.2.3 Top Ten Substances: Energy Recovery, 3Rs and Waste

Refer to Tables 3-10 to 3-12 and Figures 3-11 to 3-13 for a summary of the top ten substances contributing to transfers off-site for energy recovery, 3Rs and waste.

Xylene (mixed isomers) (150 tonnes) and toluene (148 tonnes) comprised the two highest transfers sent off-site for energy recovery. Isopropyl alcohol and methyl ethyl ketone ranked third and fourth with total transfers of 144 and 130 tonnes, respectively.

Manganese (and its compounds) (36,205 tonnes) and Di-n-octyl phthalate (20,011 tonnes) comprised the two highest transfers sent off-site for 3R activity. Lead (and its compounds) and copper (and its compounds) ranked third and fourth with total transfers of 10,075 and 9,920 tonnes, respectively.

Bis(2-ethylhexyl)phthalate (5,171 tonnes) and zinc (and its compounds) (4,574 tonnes) comprised the two highest transfers sent off-site in waste. Manganese (and its compounds) and sulphuric acid ranked third and fourth with total transfers in waste of 2,923 and 1,962 tonnes, respectively.

3.2.4 Top Ten Greater Toronto Area (GTA) Cities: Energy Recovery, 3Rs and Waste

Refer to Tables 3-13 to 3-15 and Figures 3-14 to 3-16 for a summary of the top ten GTA cities contributing to transfers off-site for energy recovery, 3Rs and waste.

Mississauga (159 tonnes) and the City of North York (84 tonnes) provided the highest transfers of material sent off-site for energy recovery in the GTA. Burlington ranked third at 80.5 tonnes.

Scarborough (5,618 tonnes) and the City of East York (5,495 tonnes) contributed the highest amount of material transferred off-site for 3R activities in the GTA. Mississauga ranked third at 6,592 tonnes.

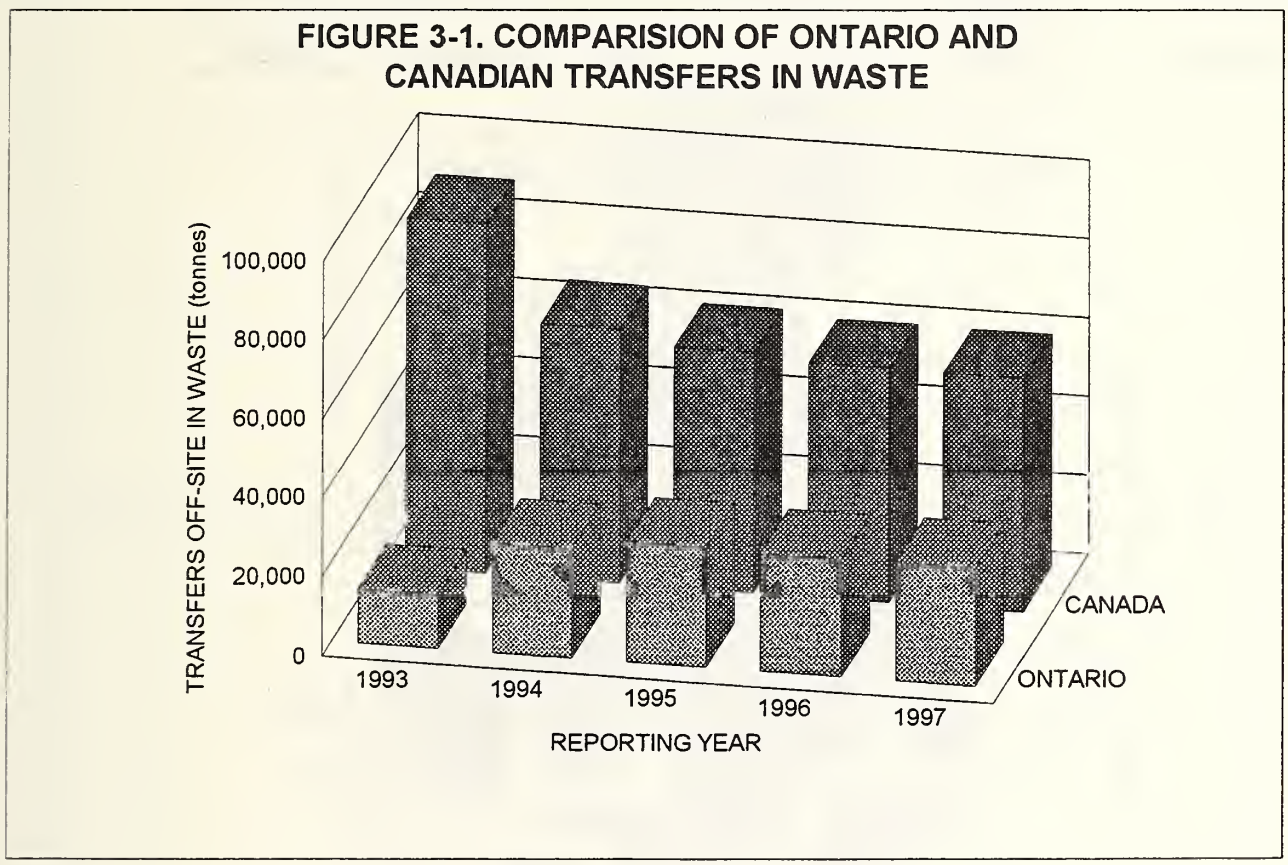
Etobicoke (5,394 tonnes) and Mississauga (1,818 tonnes) contributed the highest two rankings for the transfer of material off-site in waste. Whitby ranked

third at 854 tonnes.

TABLE 3-1. FORECASTED RANKINGS FOR ONTARIO AND CANADA

ANTICIPATED TRANSFERS:
TRANSFERS SENT OFF-SITE IN WASTE

	ACTUAL TRANSFERS* 1993	ACTUAL TRANSFERS** 1994	ANTICIPATED TRANSFERS 1995	ANTICIPATED TRANSFERS 1996	ANTICIPATED TRANSFERS 1997
ONTARIO	13,537.15	27,393.29	30,054.31	29,476.39	29,665.58
CANADA	88,717.58	64,301.85	60,772.23	59,170.23	59,033.41
ONTARIO %	15.26%	42.60%	49.45%	49.82%	50.25%



* IN 1993, THERE WERE 516 CANADIAN FACILITIES REPORTING TRANSFERS IN WASTE, OF WHICH 296 WERE IN ONTARIO

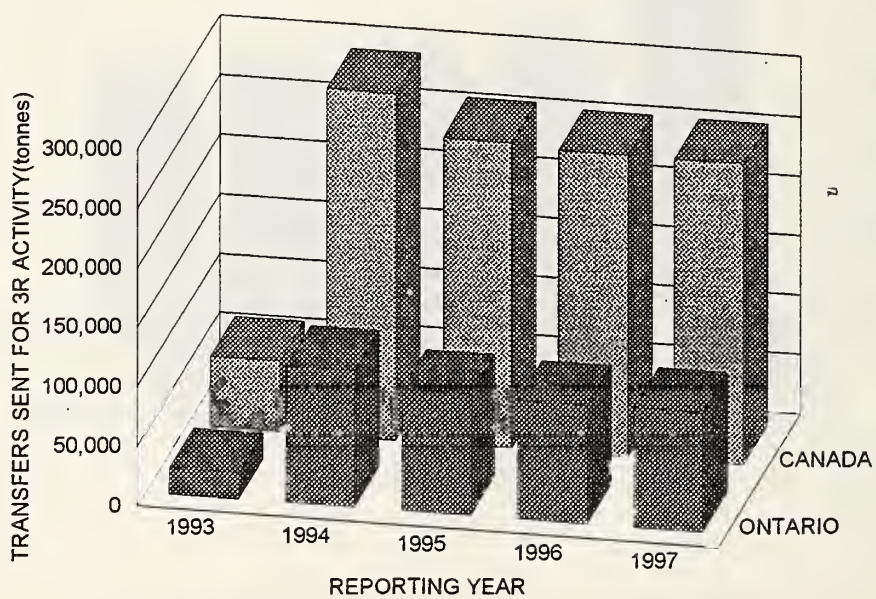
** IN 1994, THERE WERE 637 CANADIAN FACILITIES REPORTING TRANSFERS IN WASTE, OF WHICH 399 WERE IN ONTARIO

TABLE 3-2. FORECASTED 3Rs RANKINGS FOR CANADA AND ONTARIO

ANTICIPATED TRANSFERS:
TRANSFERS SENT OFF-SITE FOR RECYCLING/REUSE/RECOVERY (3R ACTIVITY)

	ACTUAL 3R ACTIVITY* 1993	ACTUAL 3R ACTIVITY** 1994	ANTICIPATED 3R ACTIVITY 1995	ANTICIPATED 3R ACTIVITY 1996	ANTICIPATED 3R ACTIVITY 1997
ONTARIO	21,944.61	114,226.82	101,404.34	99,178.37	100,352.16
CANADA	58,997.08	290,916.60	257,090.13	253,832.36	253,404.81
ONTARIO	37.20%	39.26%	39.44%	39.07%	39.60%

FIGURE 3-2. COMPARISON OF ONTARIO AND CANADIAN 3Rs



* IN 1993, THERE WERE 361 CANADIAN FACILITIES REPORTING TRANSFERS FOR 3R ACTIVITY, OF WHICH 227 WERE IN ONTARIO

** IN 1994, THERE WERE 401 CANADIAN FACILITIES REPORTING TRANSFERS FOR 3R ACTIVITY, OF WHICH 280 WERE IN ONTARIO

TABLE 3-3. REGIONAL PERSPECTIVE: ONTARIO AND CANADA

1994 TRANSFERS:

	TOTAL TRANSFERS* (tonnes)	ENERGY RECOVERY (tonnes)	RECYCLING/ RECOVERY/REUSE (tonnes)	TRANSFERS IN WASTE (tonnes)
ONTARIO	141,620.110	1,471.450	112,755.370	27,393.290
CANADA	355,218.450	5,029.170	285,887.430	64,301.850
ONTARIO %	39.87%	29.26%	39.44%	42.60%

FIGURE 3-3. TOTAL 1994 TRANSFERS FOR ONTARIO AND CANADA

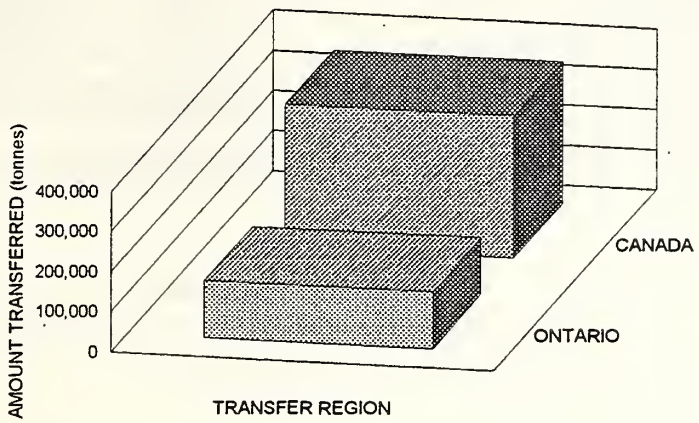
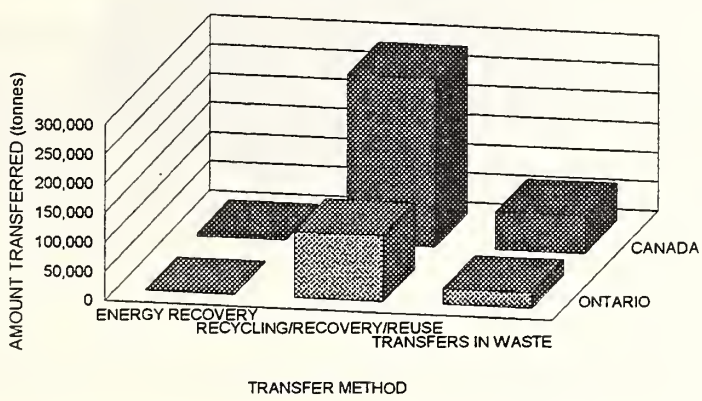


FIGURE 3-4. BREAKDOWN OF 1994 TRANSFE FOR ONTARIO AND CANADA



* THERE WERE 767 CANADIAN FACILITIES REPORTING OFF-SITE TRANSFERS, OF WHICH 489 WERE IN ONTARIO

TABLE 3-4. TOP 10 ONTARIO CITIES - ENERGY RECOVERY

RANKING	CITY	ENERGY REC. (tonnes)	NO. OF FACILITIES
1	LONDON	331.320	14
2	WINDSOR	256.395	17
3	MISSISSAUGA	158.765	26
4	HAMILTON	107.599	9
5	ALLISTON	105.890	7
6	BRANTFORD	86.080	15
7	NORTH YORK	84.290	16
8	BURLINGTON	80.494	11
9	ETOBICOKE	27.658	8
10	SCARBOROUGH	26.770	7

OTHER FACILITIES IN ONTARIO	206.210
TOTAL TRANSFERS FOR ENERGY REC.	1,471.471

FIGURE 3-5. 1994 NPRI
ONTARIO ENERGY RECOVERY: TOP 10 CITIES

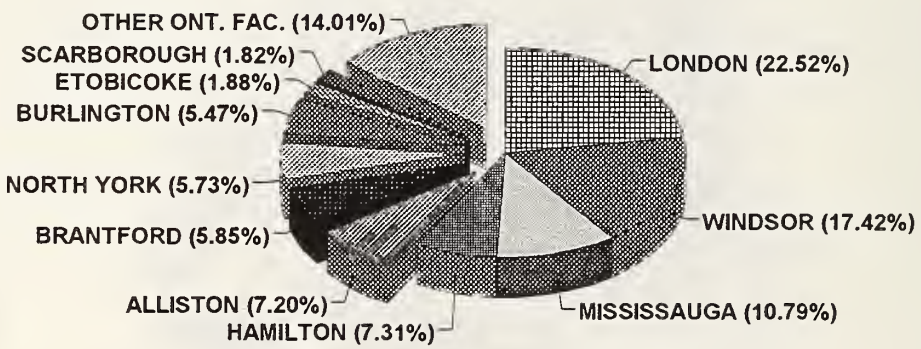


TABLE 3-5. TOP 10 ONTARIO CITIES - 3R ACTIVITY

RANKING	CITY	3R ACTIVITY (tonnes)	NO. OF FACILITIES
1	CAMBRIDGE	32,172.071	7
2	STONEY CREEK	20,110.947	4
3	MAPLE	6,592.000	1
4	SCARBOROUGH	5,617.656	13
5	ST. THOMAS	5,014.654	5
6	MISSISSAUGA	4,887.990	22
7	TORONTO	4,563.125	9
8	AJAX	3,244.899	3
9	CORUNNA	2,708.000	1
10	OSHAWA	2,557.118	5

OTHER FACILITIES IN ONTARIO	25,286.910
TOTAL ONTARIO TRANSFERS FOR 3R	112,755.370

FIGURE 3-6. 1994 NPRI
ONTARIO 3Rs - TOP 10 CITIES

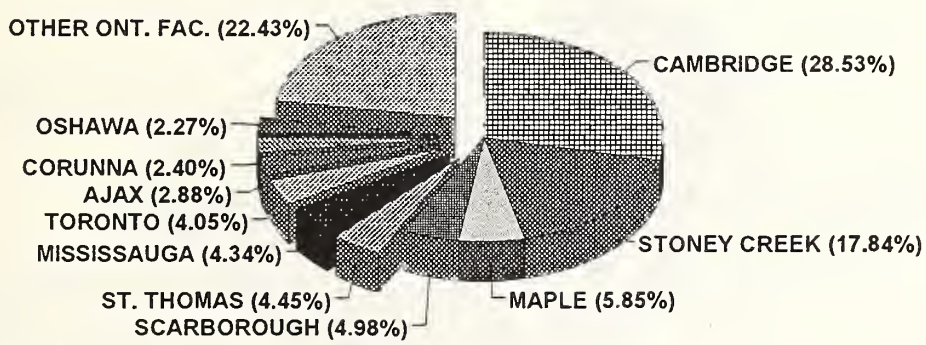


TABLE 3-6. TOP 10 ONTARIO CITIES - TRANSFER IN WASTE

RANKING	CITY	WASTE (tonnes)
1	HAMILTON	6,257.460
2	ETOBICOKE	5,394.459
3	MISSISSAUGA	1,818.181
4	L'ORIGINAL	1,467.760
5	SARNIA	1,060.584
6	WINDSOR	1,023.696
7	CORRUNA	959.956
8	WHITBY	853.874
9	BRANTFORD	773.706
10	OAKVILLE	726.890
	OTHER FACILITIES IN ONTARIO	7,056.724
	TOTAL TRANSFERS IN WASTE	27,393.290

FIGURE 3-7. 1994 NPRI
ONTARIO WASTE TRANSFER: TOP 10 CITIES

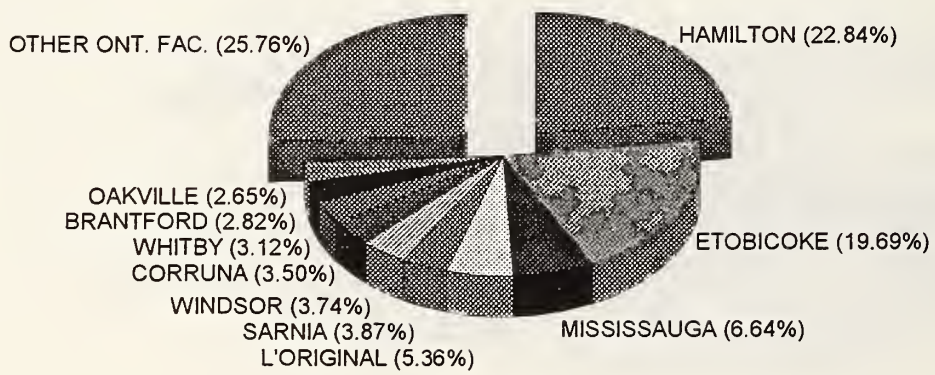


TABLE 3-7. ONTARIO TRANSFERS SENT OFF-SITE FOR ENERGY RECOVERY: TOP TEN FACILITIES

RANKING	NPRI ID	FACILITY NAME	ENERGY RECOVERY (tonnes)
1	3968	Oakside Chemicals Limited	278.30
2	3476	Windsor Assembly Plant	152.75
3	800	Rhone-Poulenc Specialty Chemicals	116.56
4	397	Honda of Canada Mfg., A Div. of Honda Canada Inc.	105.89
5	3478	Pillette Truck Assembly Plant	99.64
6	1978	PROCTER & GAMBLE INC	71.37
7	4057	Technical Coatings Co. Ltd.	61.67
8	25	Brantford Site - BASF Canada Inc.	56.43
9	3815	LILLY INDUSTRIES, INC.	52.48
10	4518	LAWSON MARDON FLEXIBLE PACKAGING	45.24
		OTHER ONTARIO FACILITIES	431.11
		TOTAL TRANSFERS FOR CHEMICAL TREATMENT	1,471.45

*THERE WERE 65 FACILITIES WHICH REPORTED OFF-SITE TRANSFERS IN WASTE FOR ENERGY RECOVERY.

FIGURE 3-8. ONTARIO TRANSFERS
TOP 10 FACILITIES: ENERGY RECOVERY

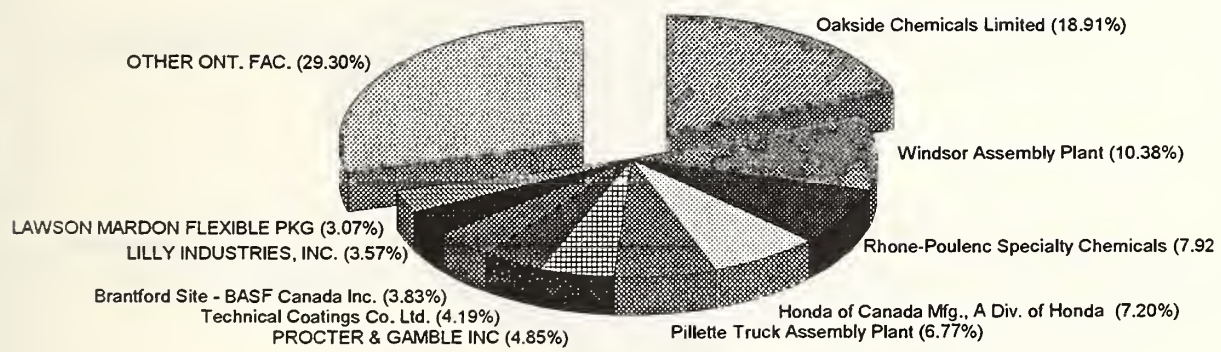


TABLE 3-8. ONTARIO TRANSFERS SENT OFF-SITE FOR 3R ACTIVITY: TOP TEN FACILITIES

NPRI ID	FACILITY NAME	RECOVERY/REUSE/RECYCLE (tonnes)
3192	Hayes Dana Inc. (Filter Division)	30,693.171
4482	A.W. COMPOUNDERS LTD.	20,000.000
4469	EXIDE CANADA INC.	6,592.000
3556	UPTON ROAD PLANT	5,192.000
4542	SCHNEIDER CANADA, Waterman Plant	4,443.000
286	DuPont Canada: Ajax Finishes Division	3,235.800
1953	PPG Canada, Inc. Clarkson C&R Plant	2,827.430
4504	HAYES-DANA, WEATHERHEAD	2,799.411
2734	Ethyl Canada Inc.	2,708.000
4432	Waltec Components	2,160.057
	OTHER ONTARIO FACILITIES	32,104.501
	TOTAL TRANSFERS FOR 3R ACTIVITY	112,755.370

FIGURE 3-9. ONTARIO TRANSFERS
TOP 10 FACILITIES: 3R ACTIVITY

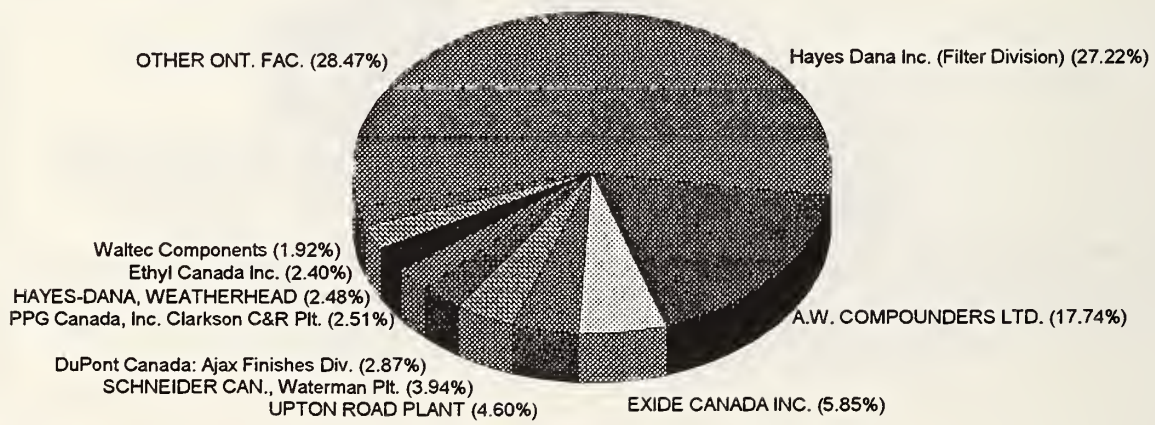


TABLE 3-9. ONTARIO TRANSFERS SENT OFF-SITE IN WASTE: TOP TEN FACILITIES

NPRI ID	FACILITY NAME	QUANTITY TRANSFERRED (tonnes)
810	SAMUEL BINGHAM COMPANY	5,081.000
3713	Dofasco Inc.	2,669.012
2161	Slater Steels, H.S.B. Division	2,247.764
1520	Ivaco Rolling Mills	1,467.760
2734	Ethyl Canada Inc.	859.600
3824	CO-STEEL LASCO	841.300
4597	Ruff Clarkson Steel Limited	696.400
4448	GM OF CANADA LIMITED, SOUTH STAMPING	653.121
4045	STELWIRE LTD. PARKDALE WORKS	515.065
1215	ONTARIO TRUCK	447.764
	OTHER ONTARIO FACILITIES	11,914.508
	TOTAL TRANSFERS OFF-SITE IN WASTE FOR ONT.	27,393.294

FIGURE 3-10. ONTARIO TRANSFERS
TOP 10 FACILITIES: WASTE

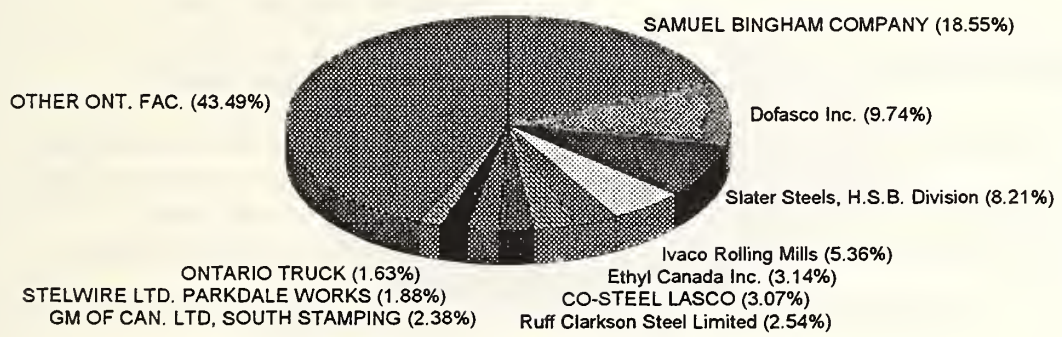


TABLE 3-10. ONTARIO TRANSFERS SENT OFF-SITE FOR ENERGY RECOVERY: TOP TEN SUBSTANCES

RANKING	SUBSTANCE NAME	ENERGY REC. (tonnes)
1	Xylene (mixed isomers)	150.210
2	Toluene	148.157
3	Isopropyl alcohol	144.504
4	Methyl ethyl ketone	129.965
5	Methanol	128.941
6	Acetone	118.389
7	n-Butyl alcohol	103.409
8	Methyl isobutyl ketone	87.065
9	Zinc (and its compounds)	86.000
10	Ethylbenzene	56.429
	OTHER SUBSTANCES	318.381
	TOTAL TRANSFERS FOR ENERGY REC. IN ONT.	1,471.450

FIGURE 3-11. ONTARIO TRANSFERS
TOP 10 SUBSTANCES: ENERGY RECOVERY

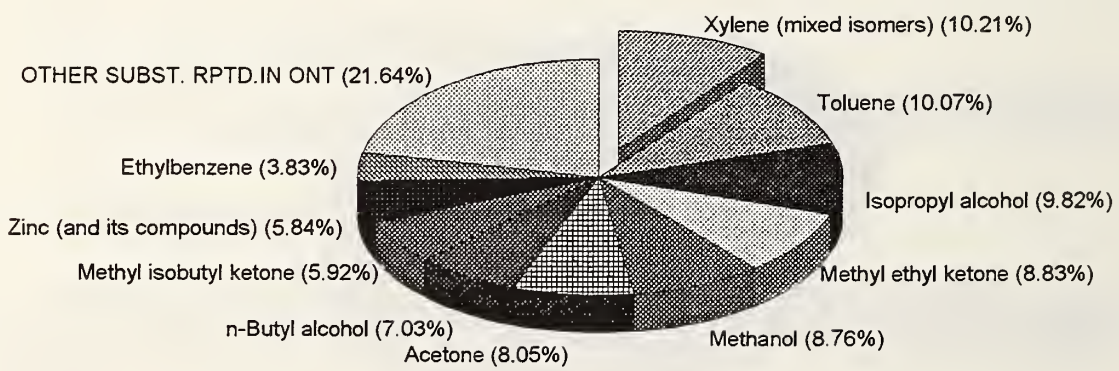


TABLE 3-11. ONTARIO TRANSFERS SENT OFF-SITE FOR 3Rs: TOP TEN SUBSTANCES

RANKING	SUBSTANCE NAME	3R ACTIVITY (tonnes)
1	Manganese (and its compounds)	36,205.129
2	Di-n-octyl phthalate	20,011.126
3	Lead (and its compounds)	10,075.530
4	Copper (and its compounds)	9,919.723
5	Sulphuric Acid	8,677.060
6	Zinc (and its compounds)	5,658.315
7	Toluene	4,985.387
8	Xylene (mixed isomers)	4,923.459
9	Methyl ethyl ketone	2,856.764
10	Chromium (and its compounds)	2,023.579
	OTHER SUBSTANCES	8,890.748
	TOTAL TRANSFERS FOR 3Rs IN ONTARIO	114,226.820

FIGURE 3-12. ONTARIO TRANSFERS
TOP 10 SUBSTANCES: OFF-SITE FOR 3Rs

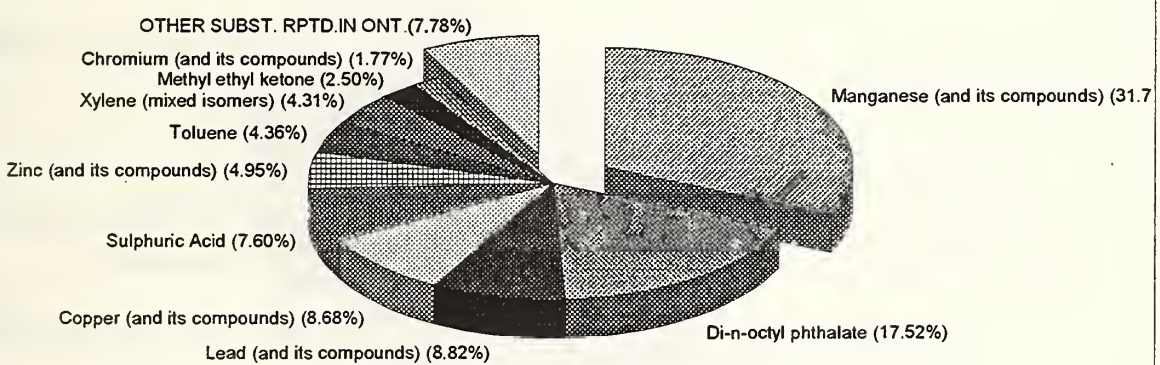


TABLE 3-12. ONTARIO TRANSFERS IN WASTE: TOP TEN SUBSTANCES

RANKING	SUBSTANCE NAME	WASTE (tonnes)
1	Bis (2-ethylhexyl) phthalate	5,171.549
2	Zinc (and its compounds)	4,573.809
3	Manganese (and its compounds)	2,923.093
4	Sulphuric acid	1,961.935
5	Toluene	1,534.972
6	Zinc (fume or dust)	1,430.063
7	Lead (and its compounds)	1,169.931
8	Xylene (mixed isomers)	1,074.933
9	Ethylene glycol	977.139
10	Hydrochloric acid	840.552
	OTHER SUBSTANCES	5,735.314
	TOTAL TRANSFERS SENT IN WASTE IN ONTARIO	27,393.290

FIGURE 3-13. ONTARIO TRANSFERS
TOP 10 SUBSTANCES SENT IN WASTE

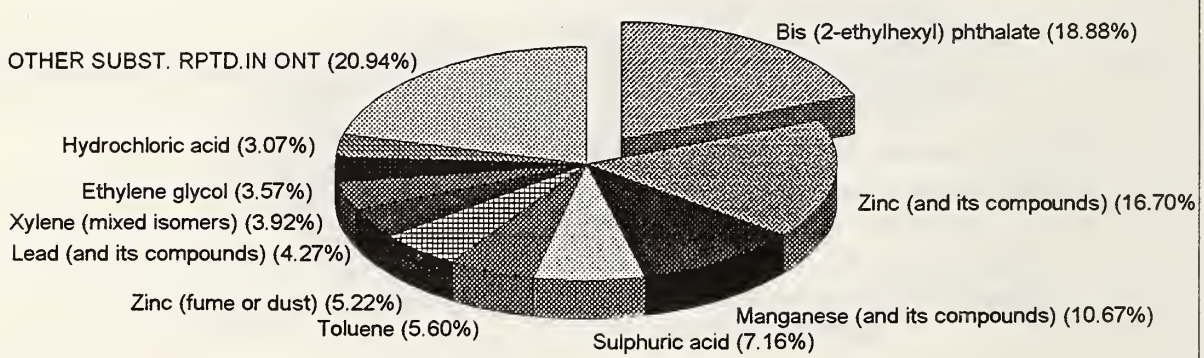


TABLE 3-13. TOP 10 GREATER TORONTO AREA (GTA) CITIES - ENERGY RECOVERY

RANKING	CITY - GREATER TORONTO AREA	ENERGY REC (tonnes)
1	MISSISSAUGA	158.765
2	NORTH YORK	84.290
3	BURLINGTON	80.494
4	ETOBICOKE	27.658
5	SCARBOROUGH	26.770
6	PICKERING	19.000
7	GEORGETOWN	13.271
8	AJAX	12.140
9	EAST YORK	10.137
10	BRAMPTON	8.408
	OTHER FACILITIES IN ONTARIO	1,030.538
	TOTAL TRANSFERS FOR ENERGY REC.	1,471.471

FIGURE 3-14. 1994 NPRI
ENERGY RECOVERY: TOP 10 GTA CITIES

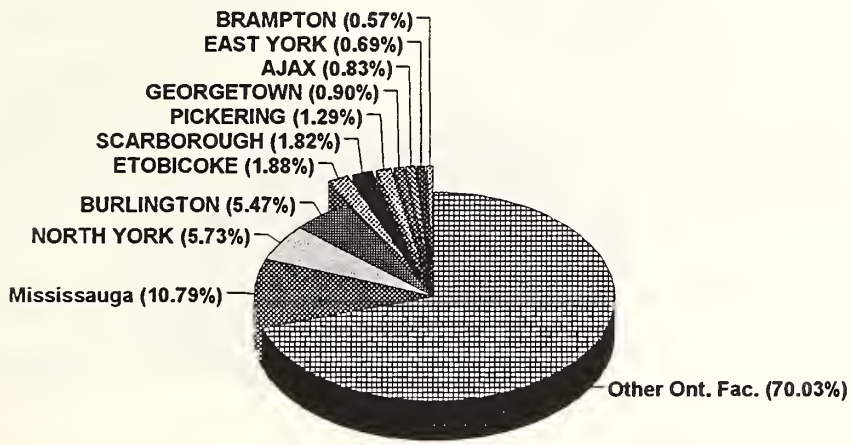


TABLE 3-14. TOP 10 GREATER TORONTO AREA (GTA) CITIES - 3R ACTIVITY

RANKING	CITY - GREATER TORONTO AREA	3R ACTIVITY (tonnes)
1	SCARBOROUGH	5,617.656
2	EAST YORK	5,494.996
3	MISSISSAUGA	4,887.990
4	AJAX	3,244.899
5	OSHAWA	2,557.118
6	ETOBICOKE	1,749.526
7	NORTH YORK	1,118.869
8	BRAMPTON	498.090
9	NEWMARKET	379.800
10	BURLINGTON	270.705
	OTHER FACILITIES IN ONTARIO	86,935.721
	TOTAL ONTARIO TRANSFERS FOR 3R	112,755.370

FIGURE 3-15. 1994 NPRI
ONTARIO 3Rs - TOP 10 GTA CITIES

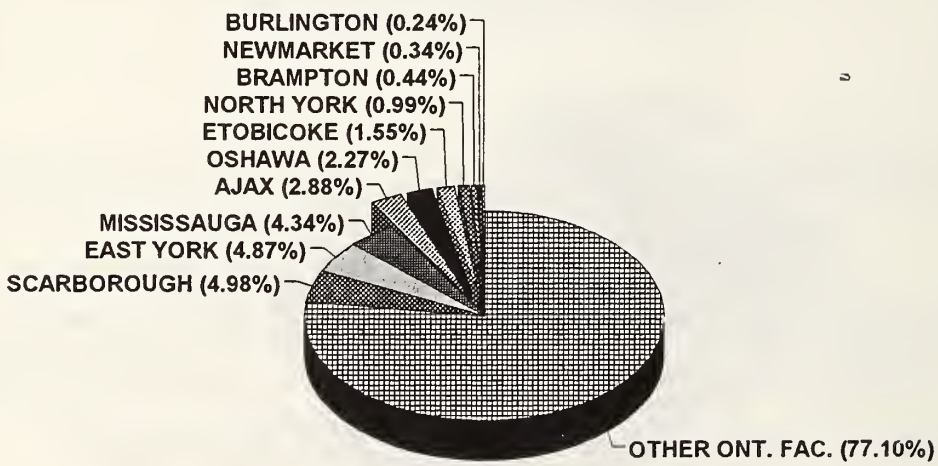
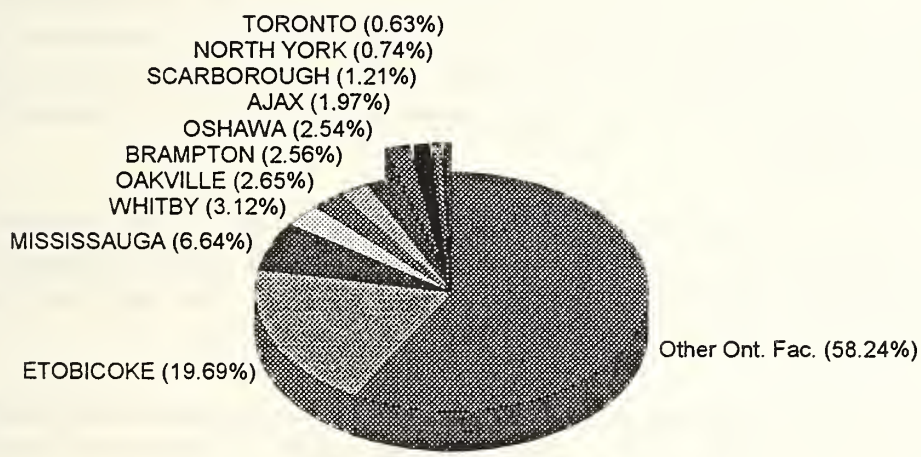


TABLE 3-15. TOP 10 GREATER TORONTO AREA (GTA) CITIES - TRANSFERS IN WASTE

RANKING	CITY - GREATER TORONTO AREA	WASTE (tonnes)
1	ETOBICOKE	5,394.459
2	MISSISSAUGA	1,818.181
3	WHITBY	853.874
4	OAKVILLE	726.890
5	BRAMPTON	701.993
6	OSHAWA	697.094
7	AJAX	540.344
8	SCARBOROUGH	331.893
9	NORTH YORK	202.648
10	TORONTO	171.476
	OTHER FACILITIES IN ONTARIO	15,954.438
	TOTAL TRANSFERS IN WASTE	27,393.290

FIGURE 3-16. 1994 NPRI
WASTE TRANSFER: TOP 10 GTA CITIES



4. CANADA-ONTARIO AGREEMENT (COA)

The Government of Canada and the Province of Ontario signed an agreement effective April 1, 1994 regarding the Great Lakes Basin Ecosystem. Canada and Ontario recognize their shared responsibility for managing the Great Lakes and that neither government can succeed alone.

The purpose of this Canada-Ontario Agreement (COA) was to renew and strengthen planning, co-operation and co-ordination between Canada and Ontario in implementing actions to restore and protect the ecosystem, to prevent and control pollution into the ecosystem, and to conserve species, populations and habitats in the Great Lakes Basin Ecosystem. Implementation of this COA will contribute substantially to meeting Canada's obligations under the Revised Canada-U.S. Great Lakes Water Quality Agreement as amended by the 1987 Protocol.

Three main objectives of the COA were agreed to:

1. To restore degraded areas
2. To prevent and control pollution, and
3. To conserve and protect human and ecosystem health.

The ultimate goal of Canada and Ontario under the "prevention and control pollution" objective is to achieve the virtual elimination of persistent, bioaccumulation and toxic substances. Thirteen persistent, bioaccumulative and toxic substances are of immediate concern in the Great Lakes Basin, as identified by the International Joint Commission and bi-national activities, and are referred to as Tier I substances. These pollutants require immediate action to eliminate their use, generation or release into the Great Lakes environment.

Identified as Tier II are 26 pollutants which have demonstrated the potential to impair the Great Lakes Basin Ecosystem, and these along with other pollutants will be subject to research and voluntary reductions at the source. The Tier I and Tier II listings represent an initial base-line commitment.

Six COA substances are listed in the NPRI. The data on releases and transfers for Ontario can be found in Table 4-1. This table provides a release and transfer breakdown for the six COA substances found on the NPRI substance list to-date. The release and transfer estimates shown do not necessarily provide any definite trend. It should however be noted that these values were consistent between 1993 and 1994. As more facilities become aware of the NPRI reporting requirements and the methods to perform release and transfer calculations, more precise and accurate release and transfer estimates will be reported in the future for these substances.

Table 4-2 presents the NPRI air releases of COA substances (that are in the NPRI) from Ontario facilities for 1994. Most of the releases of these COA substances were to air.

Presently, there are only six COA substances reported under the NPRI. Certain substances that have high public visibility, including COA substances such as pesticides, PCBs, dioxins, furans, and PAHs were not included on the NPRI because they are banned or regulated and--in the case of many others--are unlikely to meet the NPRI reporting threshold of 10 tonnes. Special reporting requirements are needed for these substances and options for reporting these substances are being evaluated.

The NPRI list of substances is reviewed annually to determine which substances should be included in the list. Candidate substances from other substance lists (prepared for different purposes) will also be reviewed for addition to the NPRI list.

TABLE 4-1. COA SUBSTANCE RELEASES IN THE 1993 AND 1994 NPRI

Substance	Releases (tonnes)	Transfers (tonnes) in Waste
Tier I		
Mercury	0.068 (1993) 0.076 (1994)	0.198 (1993) 2.633 (1994)
Alkyl-Lead	N/A	N/A
Tier II		
Anthracene	6.560 (1993) 1.241 (1994)	0.828 (1993) 3.460 (1994)
Cadmium	0.629 (1993) 1.976 (1994)	1.812 (1993) 1.473 (1994)
1,4-Dichlorobenzene	0 (1993) 0 (1994)	0 (1993) 0 (1994)
4,4'-Methylenebis(2-chloroaniline)	0.004 (1993) 0.005 (1994)	0 (1993) 0 (1994)

TABLE 4-2. NPRI 1994: ONTARIO FACILITIES RELEASING COA SUBSTANCES TO AIR

SUBSTANCE	RELEASES				
	Air (tonnes)	NPRI ID	Facility	City	(tonnes)
anthracene	1.071				
		3713	Dofasco Inc.	Hamilton	0.630
		3855	Stelco Lake Erie Works	Nanticoke	0.241
		3899	Lake Ontario Refinery	Mississauga	0.200
cadmium (and its compounds)	1.746				
		1236	Falconbridge Smelter Complex	Falconbridge	1.281
		2815	Kidd Creek Metallurgical Site	Hoyle	0.465
mercury (and its compounds)	0.057				
		3436	ICI Forest Products	Cornwall	0.057
p,p'-methylenebis (2-chloroaniline)	0.000				

5. REMEDIAL ACTION PLANS (RAP's)

Industrial, municipal and recreational use of the Great Lakes has imposed great stress on the ecosystem. Pressures arise from, among other things, toxic substances in water, sediment, fish, and other organisms living in or depending on the aquatic ecosystem and its watershed. Human health and the viability of food chains are at risk. Native fish, bird, mammal and plant species have been lost, partly due to inputs of chemical pollutants. There is an urgent need to eliminate almost all persistent toxic substances from the Great Lakes ecosystem, and rehabilitate degraded and lost fish and wildlife habitat.

Remedial Action Plans (RAP's) were formally established in 1987, under the Canada-United States Great Lakes Water Quality Agreement, where these types of environmental effects were particularly pronounced. There are 17 RAP locations in Ontario waters, five of which are shared with the United States on connecting river systems.

RAP's are an iterative, action-planning process used to identify the responsibility and timeframe for implementing remedial and preventive actions necessary to restore impaired uses in a three-stage process. Stage 1 includes problem definition and identification of sources and causes of environmental degradation. Stage 2 identifies goals and remedial and preventive actions to restore beneficial uses. Stage 3 requires confirmation of the effectiveness of those measures and restoration of the beneficial uses.

Tables 5-1 to 5-15 present the releases to each medium from each facility in each RAP area. Some RAP areas are not represented in these tables because there were no NPRI facilities reporting releases in them. The tables also show the city release totals for each city in the RAP areas.

Figures 5-1 to 5-14 present the total releases (to air, water and land combined) of NPRI substances from cities in the RAP areas. Some RAP areas are not represented in these figures because no facilities reported any NPRI releases in those RAP areas. If only part of a city is in the RAP area, the total releases for all of that city are reported. For example, some of western Mississauga is not in the Toronto RAP area, but Figure 5-14 presents the total releases from all of Mississauga.

TABLE 5-1. NPRI 1994: RELEASES FROM FACILITIES IN THE BAY OF QUINTE RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
744	CFB TRENTON	ASTRA	0.000	0.000	160.000	160.000	160.000
4496	DURABLA CANADA	BELLEVILLE	167.000	0.000	10.800	177.800	177.800
3207	3M HAVELOCK, ONTARIO PLANT SITE	HAVELOCK	7.670	0.000	0.000	7.670	7.670
1322	GOODYEAR CANADA INC.	NAPANEE	N.A.	N.A.	N.A.	0.009	0.009
2656	PEBRA	PETERBOROUGH	376.825*	N.A.	N.A.	376.851	
201	PTBO WASTE WATER TREATMENT PLANT	PETERBOROUGH	0.000	125.200	0.000	125.200	
1287	GENERAL ELECTRIC CANADA	PETERBOROUGH	7.277*	N.A.	N.A.	7.407	509.458
3541	ESSROC CANADA INC. PICTON WORKS	PICTON	N.A.	N.A.	N.A.	0.010	0.010
4495	DOMTECH HOLDINGS INC.	TRENTON	N.A.	N.A.	N.A.	0.390	0.390

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-1.

NPRI 1994: Releases* from Cities in the Bay of Quinte RAP Area

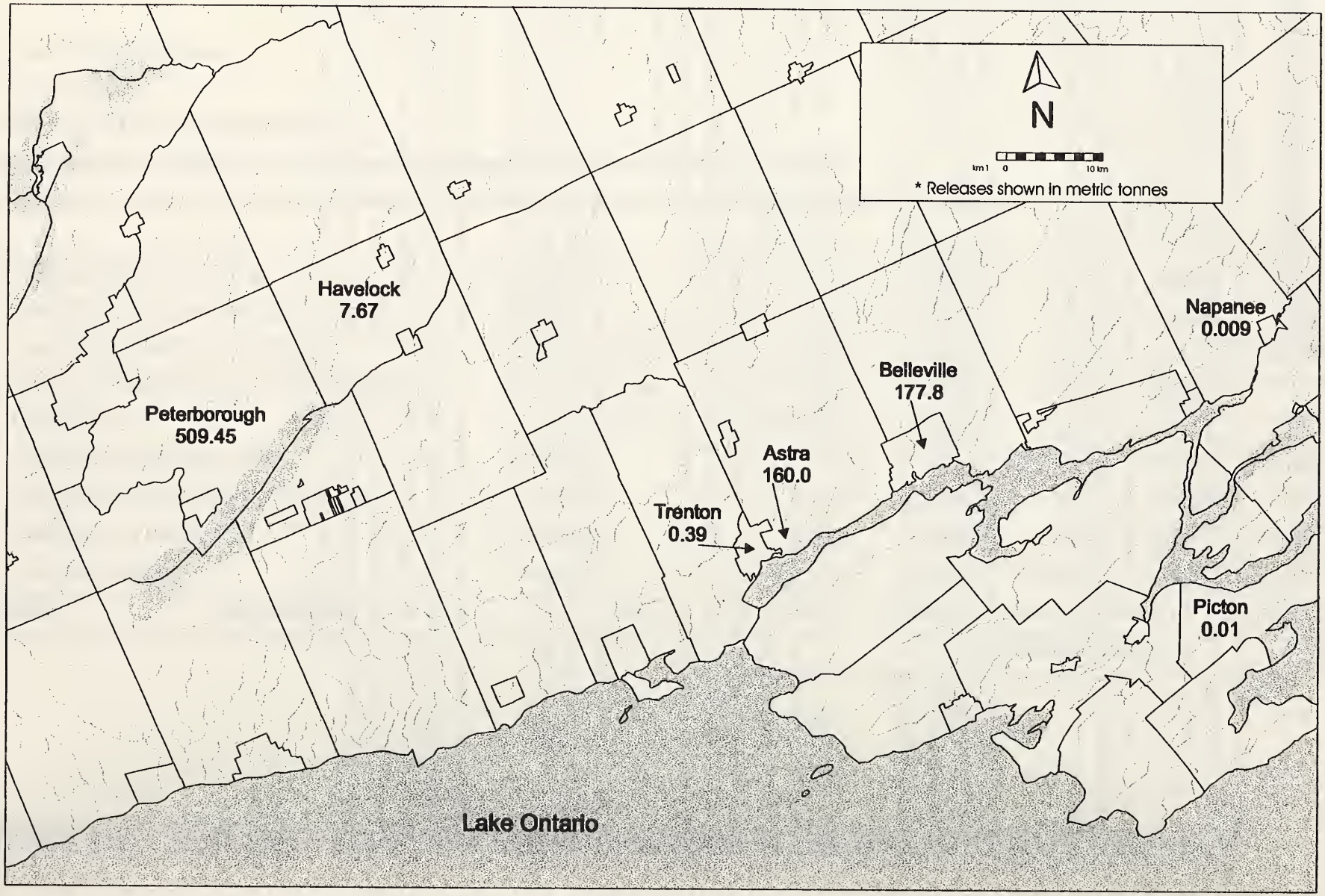


TABLE 5-2. NPRI 1994: RELEASES FROM FACILITIES IN THE COLLINGWOOD HARBOUR RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL	CITY TOTAL
4522	LIBBEY-OWENS-FORD CO.	COLLINGWOOD	145.400	0.000	0.000	145.400	
1313	GOODYEAR CANADA INC. (COLLINGWOOD)	COLLINGWOOD	47.302	0.000	0.000	47.302	192.702

Figure 5-2.
NPRI 1994: Releases* from Cities in the Collingwood RAP Area

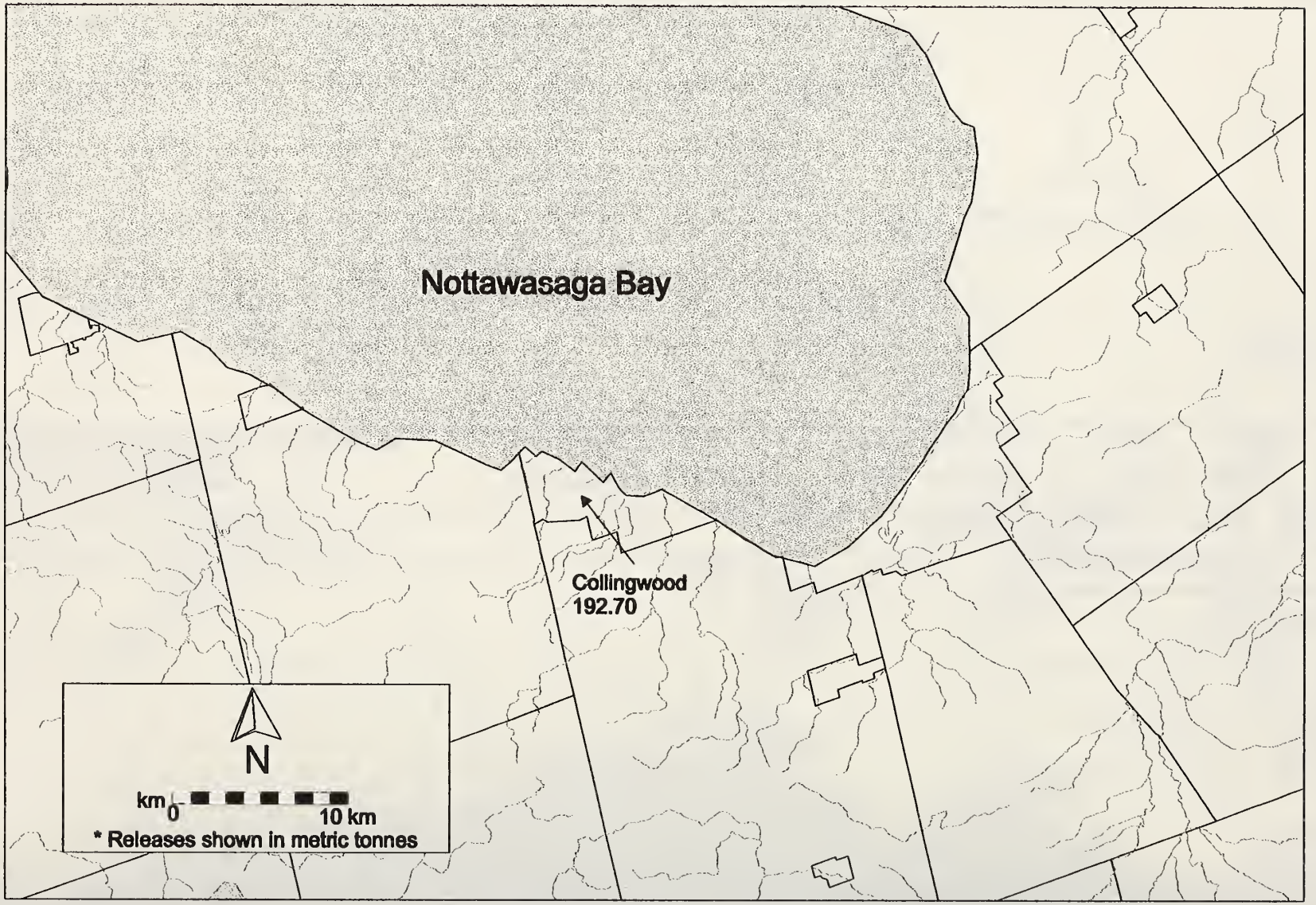


TABLE 5-3. NPRI 1994 : RELEASES FROM FACILITIES IN THE DETROIT RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL(1)	CITY TOTAL
1290	GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	1475.130	158.500	0.000	1633.630	
3520	OXY CHEMICALS (FORMERLY CANADIANOXY)	AMHERSTBURG	2.860	0.000	0.000	2.860	1636.490
1269	ESSEX ALUMINUM PLANT	WINDSOR	1147.551	0.000	0.000	1147.551	
3476	WINDSOR ASSEMBLY PLANT	WINDSOR	1017.901	0.313	0.000	1018.214	
3478	PILLETTE TRUCK ASSEMBLY PLANT	WINDSOR	315.134	0.000	0.000	315.134	
3416	WINDSOR CASTING PLANT	WINDSOR	38.035*	70.100*	N.A.	108.915	
31	WINDSOR SITE - BASF CANADA INC.	WINDSOR	89.700	0.000	0.000	89.700	
3633	RIVERSIDE FABRICATING LIMITED	WINDSOR	10.858	0.000	0.000	10.858	
722	MACDONALD AND WHITE VARNISH AND PAINT CO. LTD.	WINDSOR	3.010	0.000	0.000	3.010	
4416	WINDSOR ALUMINUM PLANT	WINDSOR	2.627	0.000	0.000	2.627	
4637	FABRICATED STEEL PRODUCTS INC.	WINDSOR	0.562	0.000	0.260	0.822	
4505	GROUND EFFECTS LIMITED	WINDSOR	0.130	0.000	0.630	0.760	
4601	ANCHOR LAMINA INC.	WINDSOR	N.A.	N.A.	N.A.	0.130	
4602	ANCHOR LAMINA INC.	WINDSOR	N.A.	N.A.	N.A.	0.130	
3886	ESSEX ENGINE PLANT	WINDSOR	N.A.	N.A.	N.A.	0.100	
3630	WINDSOR ENGINE PLANT 1	WINDSOR	N.A.	N.A.	N.A.	0.071	
4539	STANDARD INDUCTION CASTINGS LTD.	WINDSOR	0.020	0.000	0.050	0.070	2698.092

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-3.
NPRI 1994: Releases* from Cities in the Detroit River RAP Area

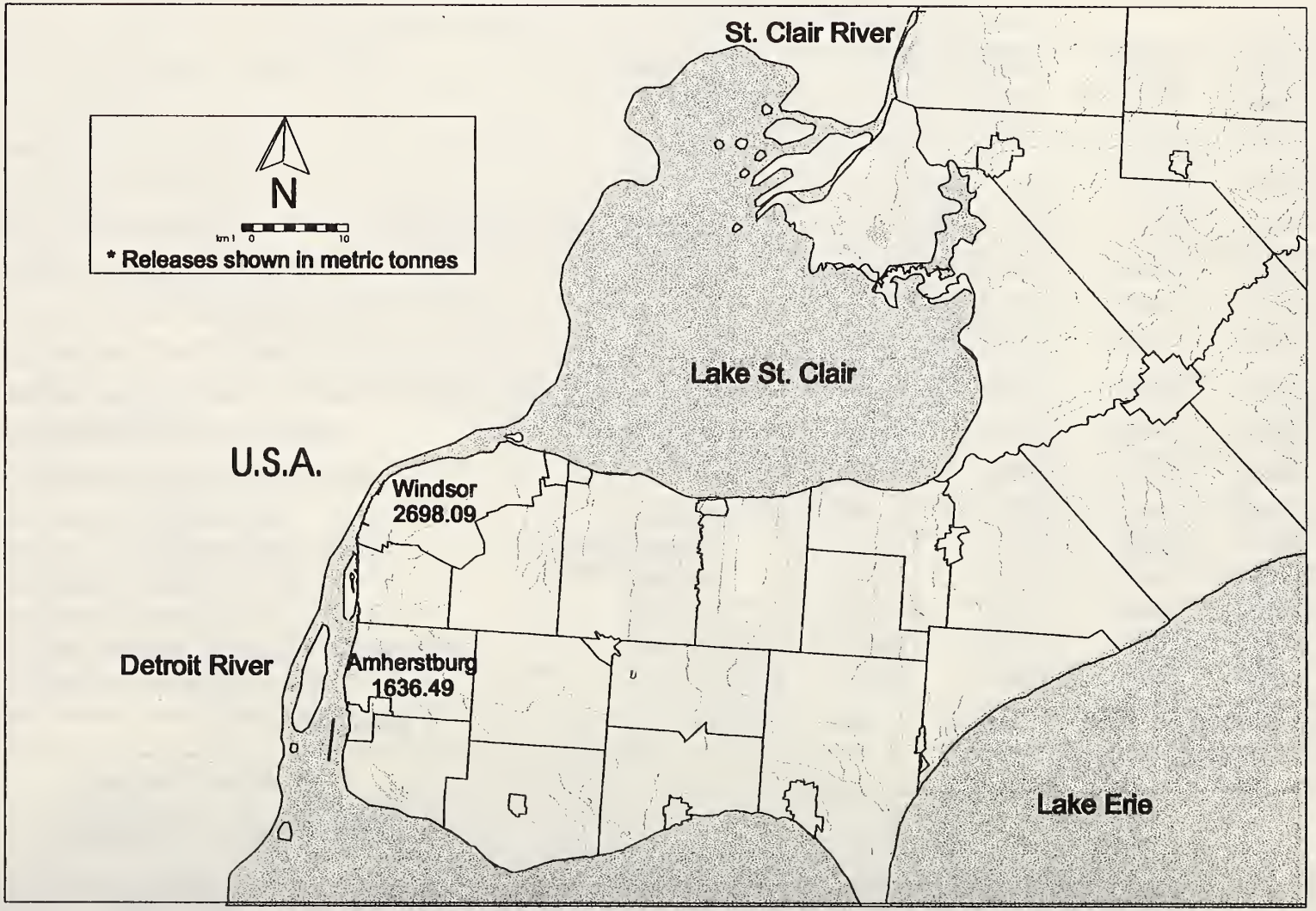


TABLE 5-4. NPRI 1994: RELEASES FROM FACILITIES IN THE HAMILTON RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
3117	BALL PACKAGING PRODUCTS CANADA, INC. BURLING	BURLINGTON	89.304	0.000	0.000	89.304	
400	HOWELL PACKAGING LIMITED	BURLINGTON	42.833	0.440	0.000	43.273	
135	BONAR INC.	BURLINGTON	29.180	0.000	0.000	29.180	
4057	TECHNICAL COATINGS CO. LTD.	BURLINGTON	23.586*	N.A.	N.A.	24.415	
1668	NALCO CANADA INC. BURLINGTON	BURLINGTON	N.A.	N.A.	N.A.	3.530	
4205	A. H. TALLMAN BRONZE COMPANY, LIMITED	BURLINGTON	1.840	0.000	0.000	1.840	
4613	CAPO INDUSTRIES LTD.	BURLINGTON	N.A.	N.A.	N.A.	0.513	
3037	STELWIRE LTD. BURLINGTON WORKS	BURLINGTON	0.140	0.000	0.000	0.140	
354	GENNUM CORPORATION	BURLINGTON	N.A.	N.A.	N.A.	0.130	
2260	SUN CHEMICAL LTD. (BURLINGTON)	BURLINGTON	N.A.	N.A.	N.A.	0.001	
2250	THOMSON GORDON	BURLINGTON	N.A.	N.A.	N.A.	0.153	192.479
3713	DOFASCO INC.	HAMILTON	660.431	48.657	0.017	709.105	
2984	STELCO HILTON WORKS	HAMILTON	420.426*	56.610*	7.000*	484.916	
2750	CAMCO INC.	HAMILTON	108.194*	N.A.	N.A.	108.306	
3115	BALL PACKAGING PRODUCTS CANADA, INC. HAMILTO	HAMILTON	33.357	0.000	0.000	33.357	
750	NIAGARA PAINT	HAMILTON	19.790*	N.A.	N.A.	20.310	
2161	SLATER STEELS, H.S.B. DIVISION	HAMILTON	9.405*	N.A.	0.390*	10.613	
2666	GSW HEATING PRODUCTS COMPANY	HAMILTON	10.426	0.000	0.000	10.426	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
4045	STELWIRE LTD. PARKDALE WORKS	HAMILTON	7.800*	N.A.	N.A.	8.810	
1978	PROCTER & GAMBLE INC	HAMILTON	4.500	0.000	0.000	4.500	
1227	FROST WIRE PRODUCTS LTD.	HAMILTON	3.522	0.000	0.000	3.522	
2070	RUETGERS VFT INC.	HAMILTON	N.A.	N.A.	N.A.	0.910	
1388	HECKETT MULTISERV CANADA DIV. PLANT 8	HAMILTON	N.A.	N.A.	N.A.	0.393	
109	ALUMABRITE ANODIZING LTD	HAMILTON	N.A.	N.A.	N.A.	0.200	
1391	HECKETT MULTISERV CANADA DIV. PLANT 14	HAMILTON	N.A.	N.A.	N.A.	0.168	
1649	MONTANK	HAMILTON	0.130	0.000	0.000	0.130	
15	BAYCOAT	HAMILTON	0.023*	N.A.	N.A.	0.110	1395.776
3859	NELSON STEEL, DIV. SAMUEL MANU-TECH INC	STONEY CREEK	2.100	0.000	0.000	2.100	
4651	NORTH AMERICAN ZINC COMPANY	STONEY CREEK	1.160	0.000	0.000	1.160	
4557	ARDROX LIMITED	STONEY CREEK	N.A.	N.A.	N.A.	0.260	
921	BARTEK INGREDIENTS INC	STONEY CREEK	N.A.	N.A.	N.A.	0.130	
4483	BARTEK INGREDIENTS INC	STONEY CREEK	N.A.	N.A.	N.A.	0.130	3.780

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher
N.A. - Not available, may be zero.

Figure 5-4.

NPRI 1994: Releases* from Cities in the Hamilton Rap Area

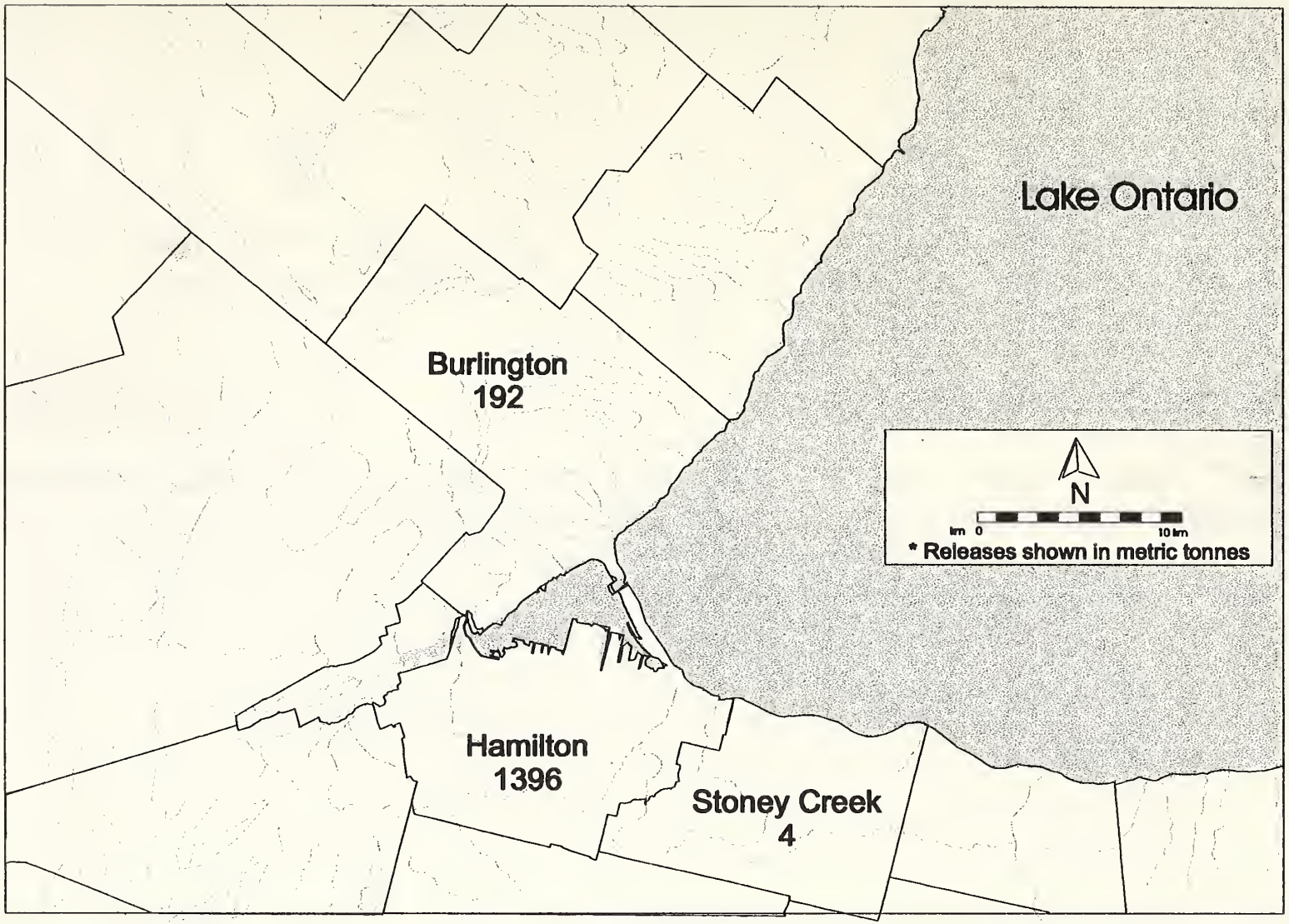


TABLE 5-5. NPRI 1994: RELEASES FROM FACILITIES IN THE JACKFISH BAY RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL	CITY TOTAL
0000002	Kimberly Clark Forest Products, Inc.	terrace bay	346.240	0.325	0.000	346.565	346.565

Figure 5-5.
NPRI 1994: Releases* from Cities in the Jackfish Bay RAP Area

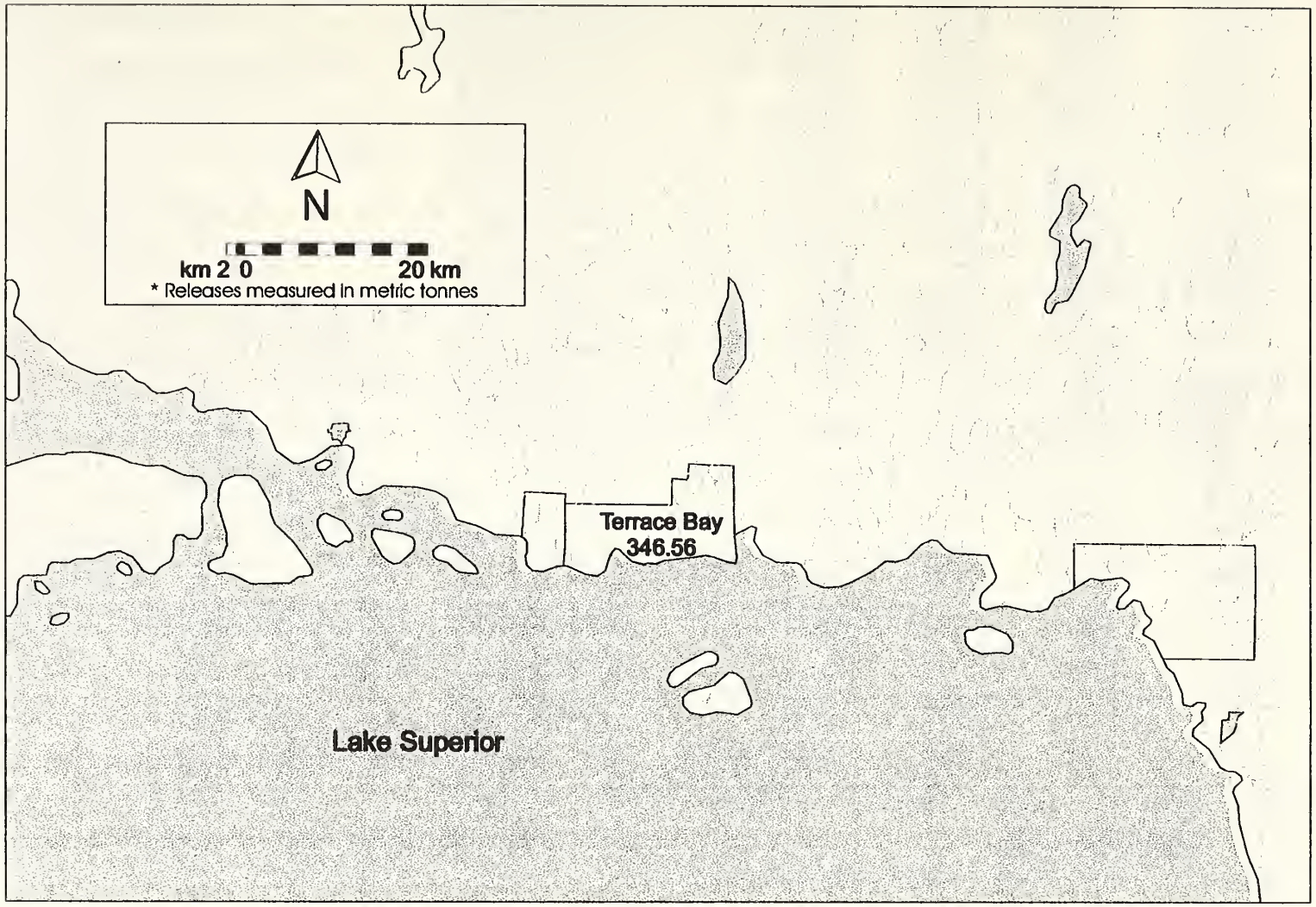


TABLE 5-6. NPRI 1994: RELEASES FROM FACILITIES IN THE NIAGARA RIVER RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
3674	DECEW FALLS WATER TREATMENT PLANT	FONTHILL	0.065	0.065	0.000	0.130	0.13
1931	PIERCE & STEVENS CANADA, INC.	FORT ERIE	17.511*	N.A.	N.A.	18.011	
656	CANADIANOXY CHEMICALS THERMOSET DIV.	FORT ERIE	1.566*	N.A.	N.A.	2.116	20.13
222	CYTEC CANADA INC. - WELLAND PLANT	NIAGARA FALLS	0.125*	24.363*	N.A.	24.793	
3847	CYRO CANADA INC.	NIAGARA FALLS	17.569	0.000	0.000	17.569	
4533	CAN MAR MANUFACTURING INC.	NIAGARA FALLS	7.420	0.000	6.060	13.480	
2704	WASHINGTON MILLS ELECTRO MINERALS CORP	NIAGARA FALLS	1.690	0.010	0.000	1.700	
3593	LUBRIZOL CANADA LIMITED	NIAGARA FALLS	1.091	0.000	0.000	1.091	
4541	NIAGARA BRONZE LIMITED	NIAGARA FALLS	N.A.	N.A.	N.A.	0.260	
3671	NIAGARA FALLS WATER TREATMENT PLANT	NIAGARA FALLS	0.065	0.065	0.000	0.130	
3677	NIAGARA FALLS POLLUTION CONTROL PLANT	NIAGARA FALLS	0.065	0.065	0.000	0.130	
728	MANCUSO CHEMICALS LIMITED	NIAGARA FALLS	0.026*	N.A.	N.A.	0.110	
2707	WASHINGTON MILLS LIMITED	NIAGARA FALLS	0.032	0.000	0.000	0.032	59.30
4437	LIGHTNING CIRCUITS	NIAGARA-ON-THE-LAKE	0.000	0.036	0.000	0.036	0.036
1471	INCO LIMITED PORT COLBORNE REFINERY	PORT COLBORNE	7.097	2.282	50.912	60.291	
1947	PORT COLBORNE POULTRY LTD	PORT COLBORNE	0.000	16.900	0.000	16.900	
2695	CASCO,INC.	PORT COLBORNE	N.A.	N.A.	N.A.	0.260	
3686	SEAWAY POLLUTION CONTROL PLANT	PORT COLBORNE	0.065	0.065	0.000	0.130	77.62
274	ENERGETIC METALS INCORPORATED	STEVENSVILLE	N.A.	N.A.	N.A.	0.880	0.88
775	QUNO CORPORATION	THOROLD	0.186	5.630	0.000	5.816	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
1300	GEON CANADA NIAGARA	THOROLD	3.934	0.001	0.000	3.935	
344	GENERAL CHEMICAL CANADA LIMITED	THOROLD	0.011	0.000	0.000	0.011	9.76
3158	ATLAS SPECIALTY STEELS	WELLAND	22.100	1.200	113.540	136.840	
1534	JOHN DEERE LIMITED WELLAND WORKS	WELLAND	55.203	0.000	0.000	55.203	
4012	SHAW PIPE PROTECTION 8	WELLAND	33.500	0.000	0.000	33.500	
351	GENCORP AUTOMOTIVE	WELLAND	27.600	0.000	0.000	27.600	
3403	STELPIPE LTD	WELLAND	0.186	0.110	0.000	0.296	
3668	WELLAND WATER TREATMENT PLANT	WELLAND	0.065	0.000	0.000	0.065	
2209	STELPIPE,A UNIT OF STELCO INC. WELLAND TU	WELLAND	N.A.	N.A.	N.A.	0.038	
4622	PREMIERREFACTORIES CAN LTD.	WELLAND	N.A.	N.A.	N.A.	0.025	253.57

(1) The values in the "Total colmn are correct; however, for some facilities there are not precise values for air, water, and land since these break down by medium does not always have to be reported, for substance releases of less than one tonne.

* _ value may be higher

N.A. - Not available

Figure 5-6.
NPRI 1994: Releases* from Cities in the Niagara River RAP Area

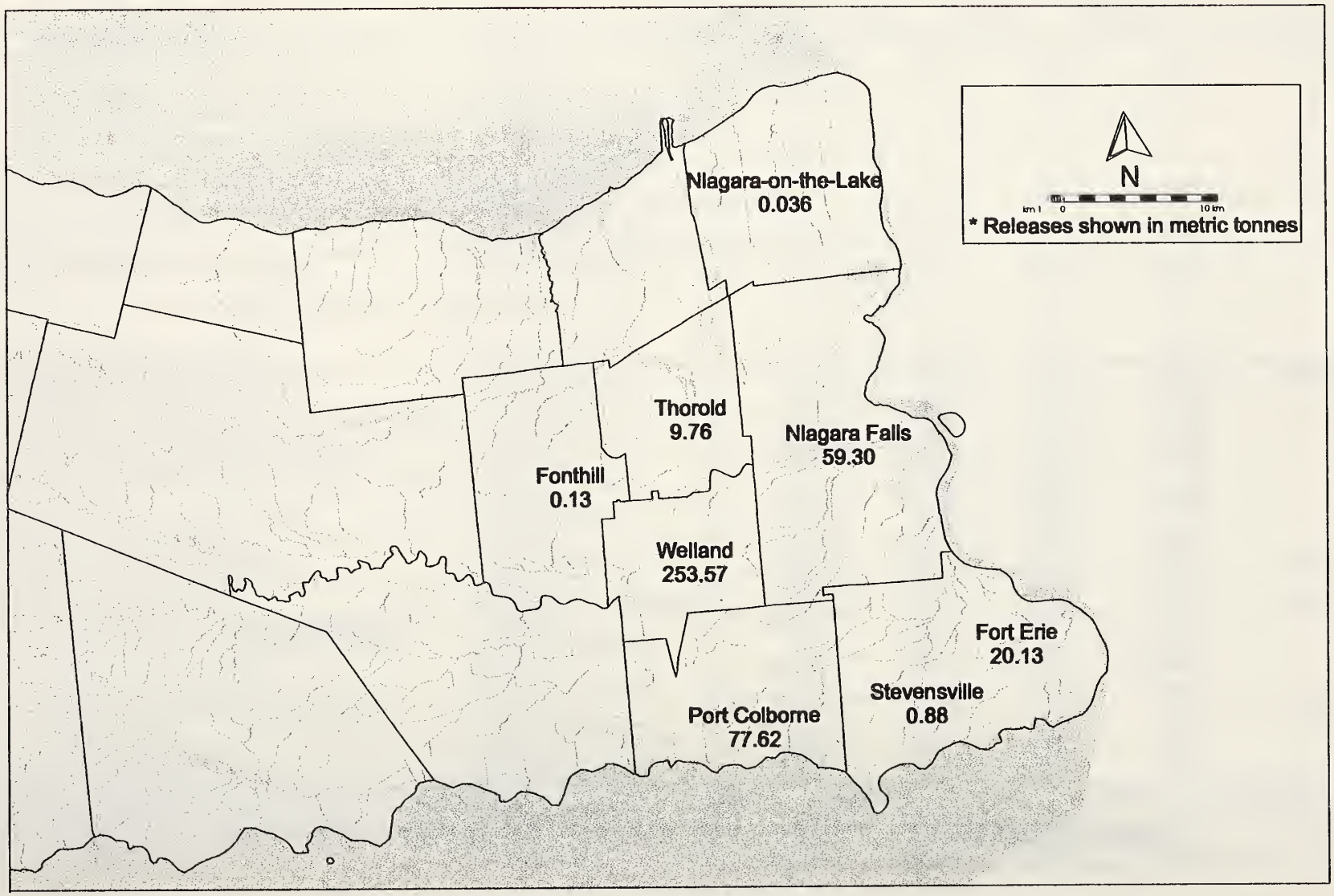


TABLE 5-7. NPRI 1994: RELEASES FROM FACILITIES IN THE PENINSULA HARBOUR RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL	CITY TOTAL
462	JAMES RIVER-MARATHON, LTD.	MARATHON	141.600	2271.000	0.000	2412.600	
1400	GOLDEN GIANT MINE	MARATHON	7.640	1.222	0.000	8.862	
3197	WILLIAMS OPERATING CORPORATION, WILLIAMS MIN	MARATHON	0.000	0.380	0.000	0.380	
2869	DAVID BELL MINE	MARATHON	0.000	0.051	0.000	0.051	2421.893

Figure 5-7.
NPRI 1994: Releases* from Cities in the Peninsula Harbour RAP Area

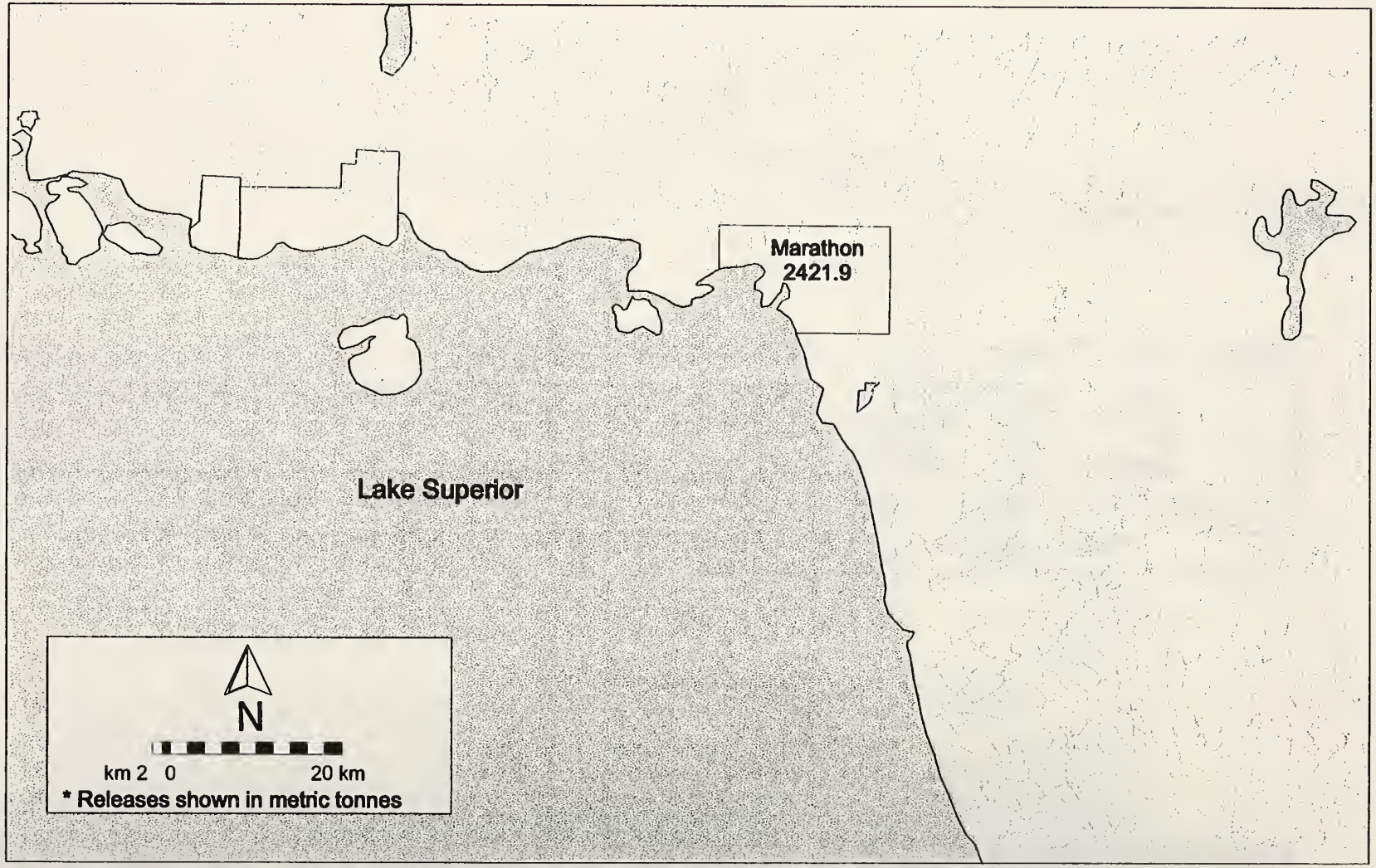


TABLE 5-8. NPRI 1994: RELEASES FROM FACILITIES IN THE PORT HOPE RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
571	DAVIDSON INTERIORS TEXTRON	PORT HOPE	76.750	0.000	0.000	76.750	
1145	CAMECO CORPORATION-PORT HOPE FACILITY	PORT HOPE	7.737	0.152	0.000	7.889	
315	ESCO LIMITED	PORT HOPE	0.037*	N.A.	1.925*	2.736	87.375

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-8.
NPRI 1994: Releases* from Cities in the Port Hope RAP Area

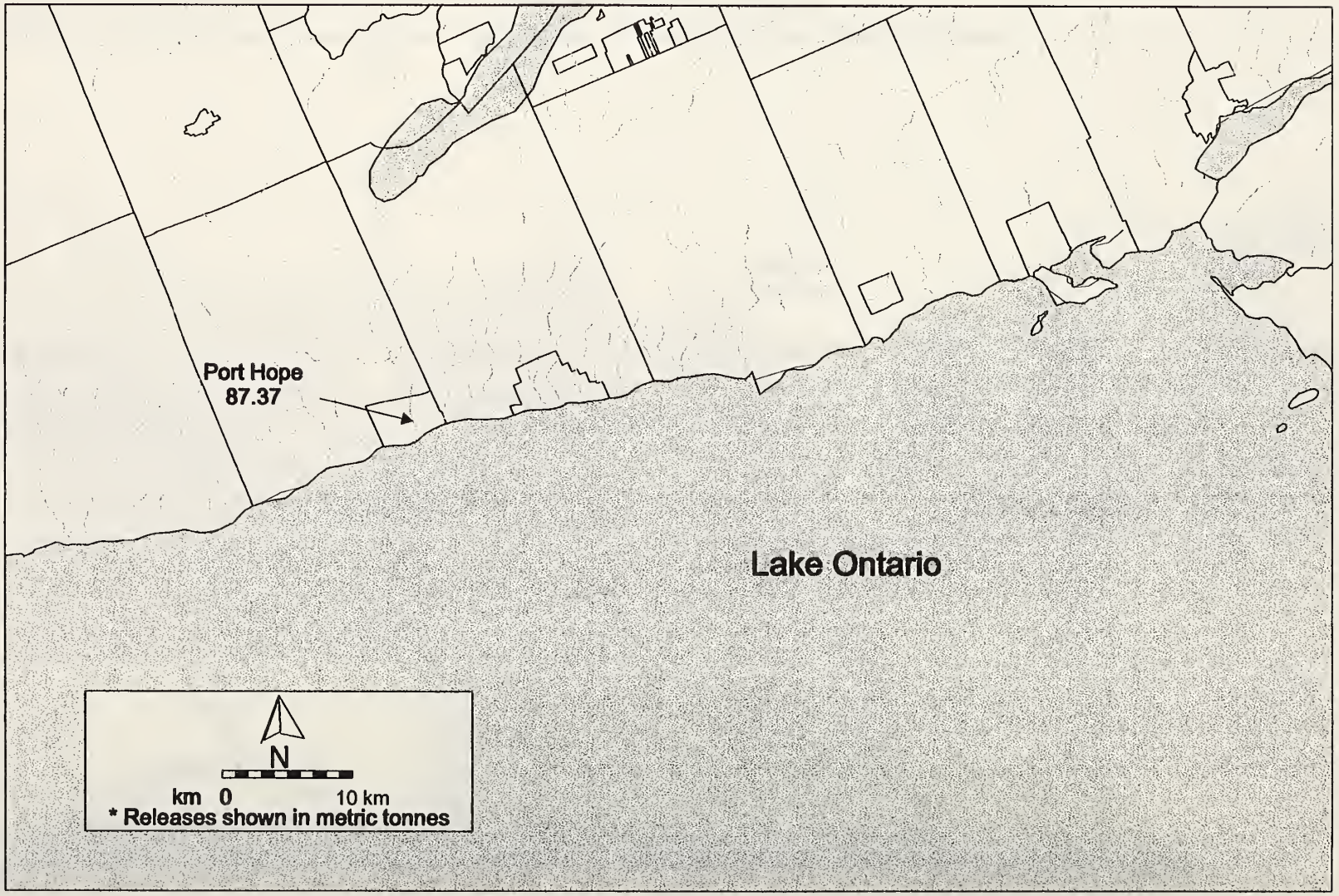


TABLE 5-9. NPRI 1994: RELEASES FROM FACILITIES IN THE ST. CLAIR RIVER RAP AREA

			RELEASES(TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL(1)	CITY TOTAL
4700	NOVACOR CHEMICALS - S.C.R.S.	CORUNNA	2075.260	0.520	0.000	2075.780	
3962	SHELL CANADA PRODUCTS LTD. - SMC REFINERY	CORUNNA	383.619*	6.410*	0.314*	391.353	
1776	NOVACOR CHEMICALS-CORUNNA SITE	CORUNNA	328.611	0.000	28.871	357.482	
2125	SHELL CANADA PRODUCTS LTD - CHEMICAL	CORUNNA	294.377*	N.A.	N.A.	295.917	
2734	ETHYL CANADA INC.	CORUNNA	144.531*	0.821*	N.A.	145.482	
2537	LAIDLAW ENVIRONMENTAL SERVICES LTD.	CORUNNA	N.A.	N.A.	N.A.	0.155	
1205	DUPONT CANADA - ST. CLAIR RIVER SITE	CORUNNA	N.A.	N.A.	N.A.	0.130	3266.299
2233	TERRA LAMBTON WORKS	COURTRIGHT	1392.630	62.300	0.000	1454.930	1454.930
1944	POLYSAR RUBBER CORPORATION	SARNIA	2669.750*	6.083*	N.A.	2675.933	
1464	IMPERIAL OIL CHEMICAL DIVISION	SARNIA	572.900*	0.205*	N.A.	573.505	
3704	SARNIA REFINERY	SARNIA	423.036*	4.492*	N.A.	427.537	
3146	DOW CHEMICAL CANADA INC. - SARNIA	SARNIA	360.090*	0.115*	57.080*	418.156	
1785	NOVACOR CHEMICALS - SARNIA SITE	SARNIA	413.100	0.000	0.000	413.100	
3071	SUNOCO INC. - SARNIA REFINERY	SARNIA	241.507	6.327	0.508	248.342	
1788	MOORE PLANT - NOVACOR CHEMICALS LTD	SARNIA	217.124	0.000	0.000	217.124	
1882	PARTEK INSULATIONS LTD	SARNIA	27.005	0.000	0.000	27.005	
37	SARNIA SITE - BASF CANADA INC.	SARNIA	0.425	0.000	0.000	0.425	5001.127
494	CHINOOK GROUP	SOMBRA	16.287*	4.349*	N.A.	20.731	20.731
4472	BENN IRON FOUNDRY LIMITED	WALLACEBURG	14.404	0.000	0.000	14.404	

			RELEASES(TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL(1)	CITY TOTAL
4700	WALTEC COMPONENTS	WALLACEBURG	N.A.	N.A.	N.A.	0.625	15.029

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-9.
NPRI 1994: Releases* from Cities in the St. Clair River RAP Area

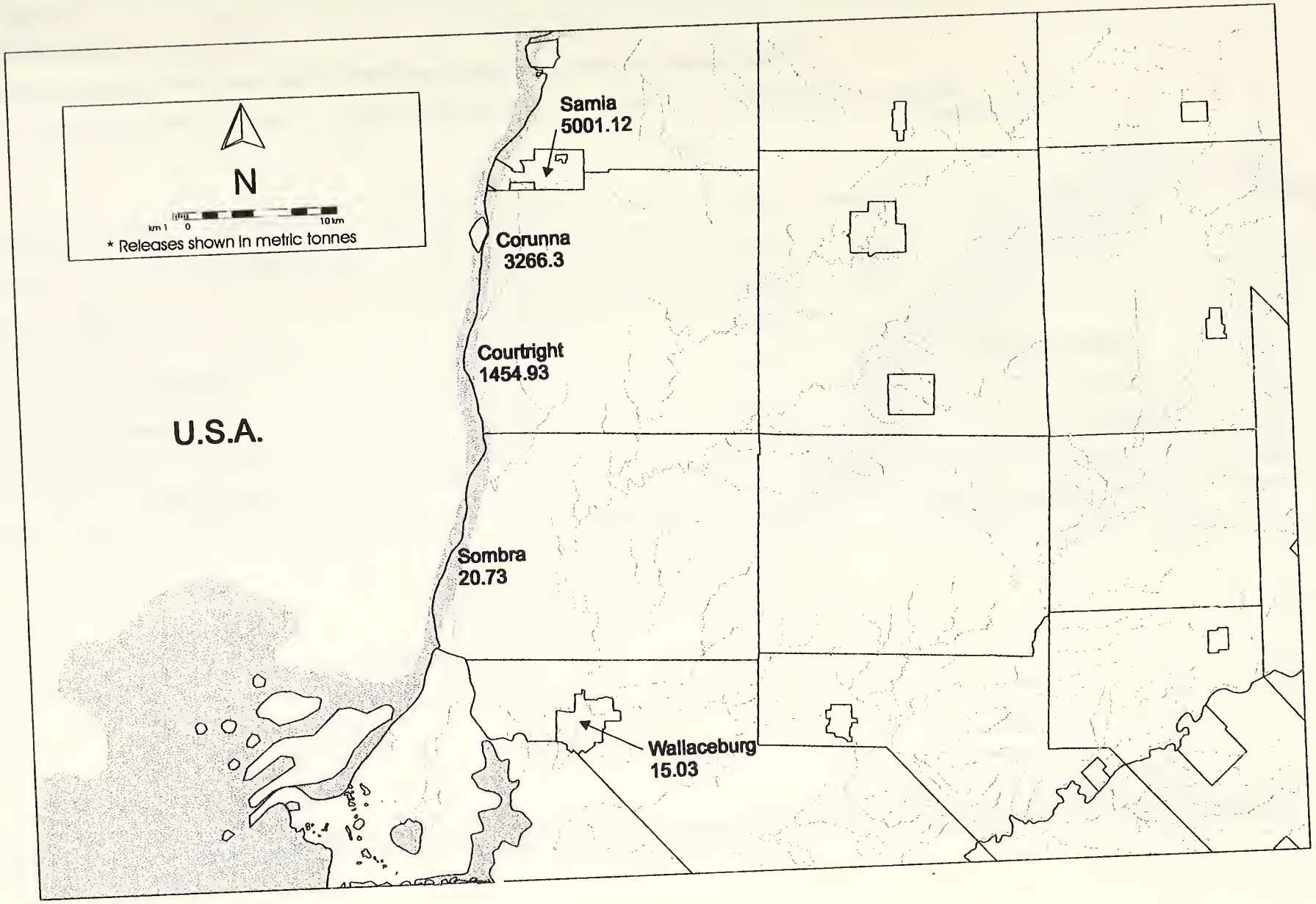


TABLE 5-10. NPRI 1994: RELEASES FROM FACILITIES IN THE ST. LAWRENCE RIVER RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
1197	DOMTAR SPECIALTY FINE PAPERS	CORNWALL	265.000	438.000	0.000	703.000	
741	MORBERN INCORPORATED	CORNWALL	568.010	0.000	0.000	568.010	
3438	CORNWALL CHEMICALS LIMITED	CORNWALL	21.178	15.127	0.000	36.305	
1242	FIBEREZ C.M.P. LTD	CORNWALL	11.900	0.000	0.000	11.900	
4400	CANADIAN TECHNICAL TAPE	CORNWALL	8.100	0.000	0.000	8.100	
3436	ICI FOREST PRODUCTS, CORNWALL WORKS	CORNWALL	6.447*	0.394*	N.A.	7.021	
1353	GUARDSMAN PRODUCTS, LIMITED	CORNWALL	4.580	0.000	0.000	4.580	1338.916

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-10.
NPRI 1994: Releases* from Cities in the St.Lawrence River RAP Area

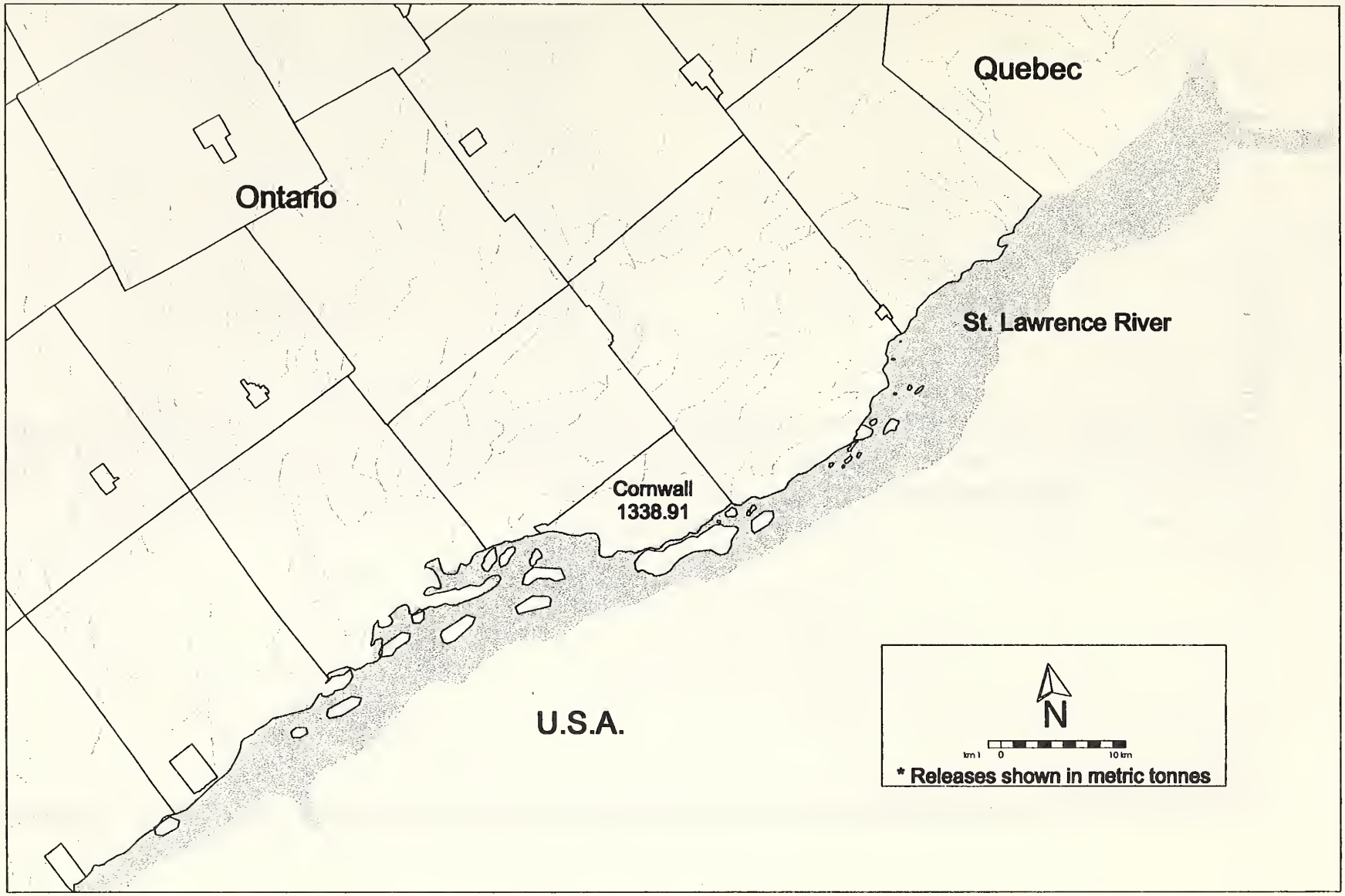


TABLE 5-11. NPRI 1994: RELEASES FROM FACILITIES IN THE ST. MARYS RIVER RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
1070	ALGOMA STEEL INC	SAULT STE. MARIE	385.637*	451.392*	1398.960*	2236.870	2236.870

Figure 5-11.
NPRI 1994: Releases* from Cities in the St. Marys River RAP Area

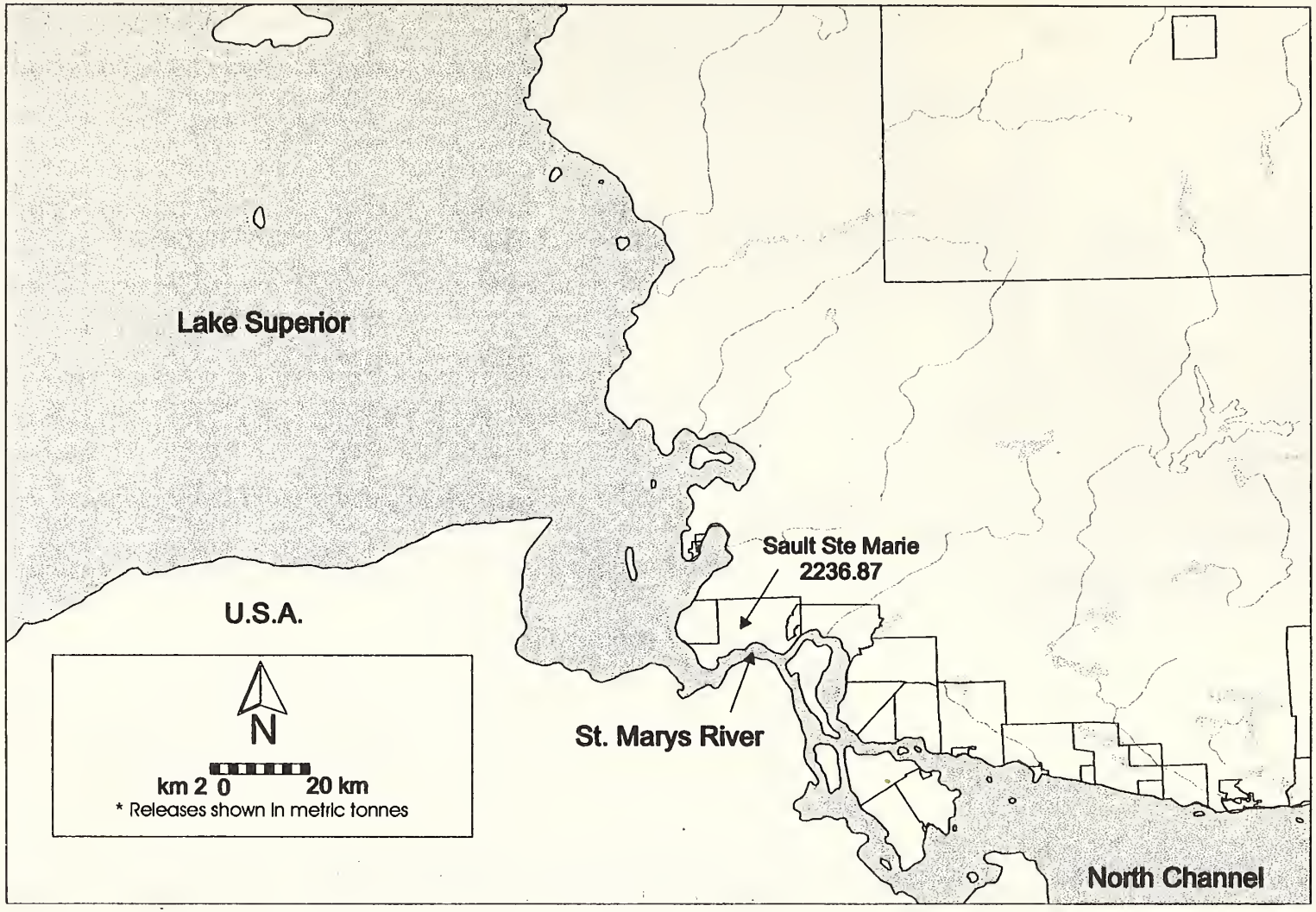


TABLE 5-12. NPRI 1994: RELEASES FROM FACILITIES IN THE SEVERN SOUND RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
734	MITSUBISHI ELECTRONICS INDUSTRIES CANADA INC.	MIDLAND	20.643*	10.310*	1.204*	32.250	
2969	CROWN PLANT	MIDLAND	N.A.	N.A.	N.A.	3.510	
2966	HERITAGE PLANT	MIDLAND	N.A.	N.A.	N.A.	2.250	
1555	KINDRED INDUSTRIES DIV.OF EMCO LTD.	MIDLAND	1.416	0.000	0.000	1.416	
3190	TRW VSS - PLANT #1	MIDLAND	0.412	0.000	0.000	0.412	
3850	DECOR PRODUCTS INTERNATIONAL	MIDLAND	N.A.	N.A.	N.A.	0.390	40.228
92	ADVANCED MONOBLOC	PENETANGUISHENE	122.180	0.000	0.000	122.180	122.180

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-12.
NPRI 1994: Releases* from Cities in the Severn Sound RAP Area

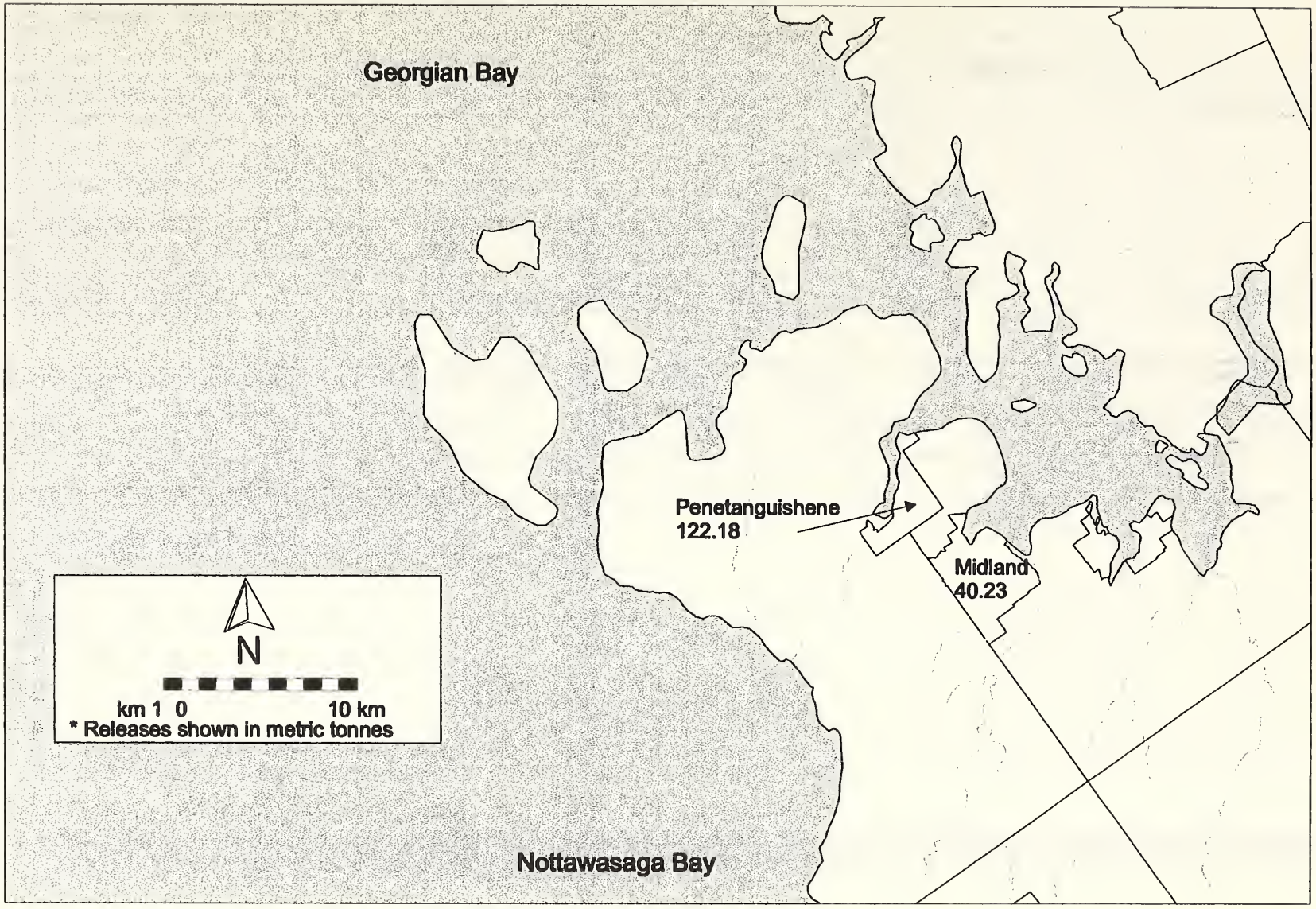


TABLE 5-13. NPRI 1994: RELEASES FROM FACILITIES IN THE SPANISH RIVER RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL	CITIY TOTAL
0000003	E.B. Eddy Forest Products Ltd. Espanola Division	espanola	79.840	0.000	0.000	79.840	79.840

TABLE 5-14. NPRI 1994: RELEASES FROM FACILITIES IN THE THUNDERBAY RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
930	AVENOR INC - THUNDER BAY	THUNDER BAY	1108.052	3.822	0.000	1111.874	
1684	NESTE RESINS CANADA - THUNDER BAY	THUNDER BAY	48.728	0.000	0.000	48.728	
3836	THUNDER BAY AIRPORT	THUNDER BAY	0.000	0.000	9.946	9.946	
2490	STERLING PULP CHEMICALS LTD. THUNDER BAY	THUNDER BAY	1.400*	N.A.	N.A.	1.660	
1994	PROVINCIAL PAPERS INC	THUNDER BAY	N.A.	N.A.	N.A.	0.003	1172.211

(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-13.
NPRI 1994: Releases* from Cities in the Thunder Bay RAP Area

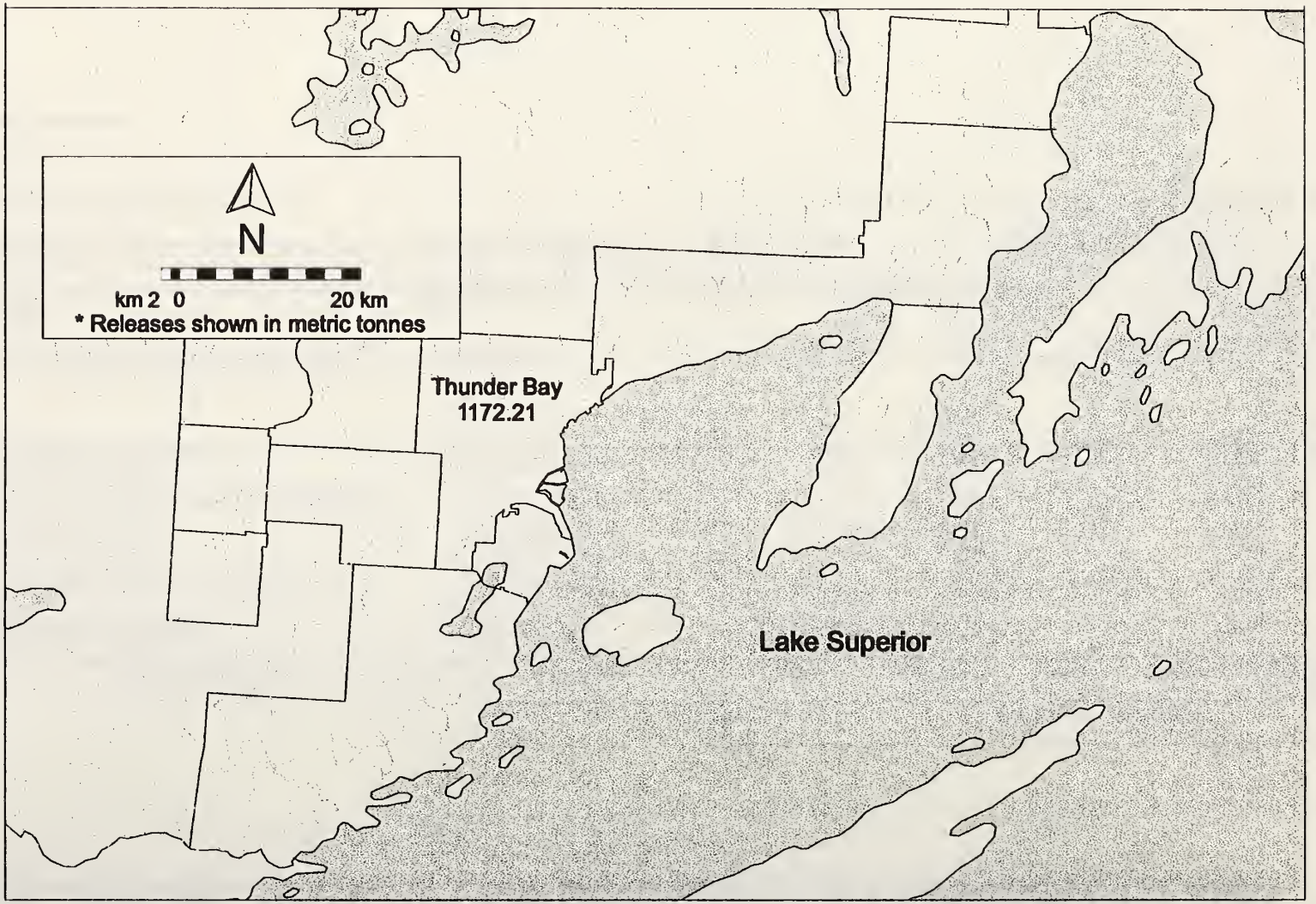


TABLE 5-15 . NPRI 1994: RELEASES FROM FACILITIES IN THE TORONTO RAP AREA

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
21	BOLTON STEEL TUBE CO. LTD.	BOLTON	N.A.	N.A.	N.A.	0.964	0.964
3991	JOHNSON MATTHEY LIMITED	BRAMALEA	221.975	0.000	0.000	221.975	
918	BAY MILLS LIMITED, BRAMPTON DIVISION	BRAMALEA	1.200	0.000	0.000	1.200	
778	RECOCHEM INC	BRAMALEA	1.050*	N.A.	N.A.	1.113	224.288
4429	VALLE FOAM INDUSTRIES INC.	BRAMPTON	756.700	0.000	0.000	756.700	
4428	VALLE FOAM INDUSTRIES INC.	BRAMPTON	295.035	0.000	0.000	295.035	
4425	TREBOR IND. TRISTAR COATINGS DIV.	BRAMPTON	247.434	0.000	0.000	247.434	
4210	VELCRO CANADA LTD.	BRAMPTON	229.800	0.000	0.000	229.800	
3759	INTERNATIONAL WALLCOVERINGS LTD	BRAMPTON	99.900	0.000	0.000	99.900	
3662	NORTHERN TELECOM CANADA LIMITED	BRAMPTON	64.687	0.000	0.000	64.687	
3590	LEPAGE DIVISION OF HENKEL LIMITED	BRAMPTON	60.765	0.000	0.000	60.765	
3430	HULS CANADA (BRAMPTON)	BRAMPTON	30.324*	N.A.	N.A.	30.454	
3388	GENERAL LATEX CANADA INC.	BRAMPTON	18.450	0.000	0.000	18.450	
3142	INDUSTRIAL CONTAINERS	BRAMPTON	14.000	0.000	0.000	14.000	
2703	THE SHERWIN WILLIAMS CO	BRAMPTON	12.990	0.000	0.000	12.990	
2263	SUNWORTHY WALLCOVERINGS (DIV. OF BORDEN CO)	BRAMPTON	7.600*	N.A.	N.A.	7.680	
2060	ROBERTS COMPANY CANADA LTD.	BRAMPTON	6.040*	N.A.	N.A.	7.635	
1942	PLASTMO LTD.	BRAMPTON	5.000	0.000	0.000	5.000	
1413	HOSTMANN-STEINBERG LIMITED	BRAMPTON	1.040*	N.A.	N.A.	2.431	
1154	CANADA COLORS AND CHEMICALS LIMITED	BRAMPTON	2.145	0.000	0.000	2.145	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
1105	AT PLASTICS INC.	BRAMPTON	1.450	0.000	0.000	1.450	
725	MACTAC CANADA LTD/LTEE	BRAMPTON	N.A.	N.A.	N.A.	1.058	
679	CHEMBOND LTD.	BRAMPTON	N.A.	N.A.	N.A.	1.020	
477	KLEEN-FLO TUMBLER INDUSTRIES LTD.	BRAMPTON	N.A.	N.A.	N.A.	0.690	
245	DOPACO CANADA INC.	BRAMPTON	N.A.	N.A.	N.A.	0.390	
210	COMMERCIAL ALCOHOLS INC.	BRAMPTON	N.A.	N.A.	N.A.	0.260	
139	THE BUTCHER ENGINEERING ENTERPRISES LTD.	BRAMPTON	N.A.	N.A.	N.A.	0.187	
3511	USINE DE GAZ SPECIAUX/BRAMALEA	BRAMPTON	N.A.	N.A.	N.A.	0.130	
4173	BRAMALEA ASSEMBLY PLANT	BRAMPTON	N.A.	N.A.	N.A.	0.130	
70	BUNDY OF CANADA	BRAMPTON	N.A.	N.A.	N.A.	0.005	1860.426
3213	CROWN CORK & SEAL CANADA - PLT.233	CONCORD	136.932	0.000	0.000	136.932	
1553	K-G PACKAGING	CONCORD	100.000*	N.A.	N.A.	101.800	
4466	TENNECO HEAVY DUTY BRAKE	CONCORD	49.732	0.000	0.000	49.732	
96	AFGD, FABRICATED PRODUCTS DIVISION	CONCORD	45.170	0.000	0.000	45.170	
3216	CROWN CORK & SEAL CANADA INC.-PLT.244	CONCORD	35.181	0.000	0.000	35.181	
2536	INTER-PROVINCIAL INKS LTD.	CONCORD	7.804	0.000	0.000	7.804	
1458	I.C.I. PAINTS (CANADA) INC.	CONCORD	N.A.	N.A.	N.A.	0.921	
316	ENTHONE-OMI(CANADA) INC.	CONCORD	N.A.	N.A.	N.A.	0.630	
711	LESTER INKS & COATINGS	CONCORD	N.A.	N.A.	N.A.	0.350	
112	ARCHITECTURAL ORNAMENT INC.	CONCORD	N.A.	N.A.	N.A.	0.100	
4600	NORTHERN TRANSFORMER INC.	CONCORD	0.013	0.000	0.000	0.013	378.633
2878	WINPAK TECHNOLOGIES INC.	EAST YORK	93.500	0.000	0.000	93.500	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
2189	STANCHEM	ETOBICOKE	N.A.	N.A.	N.A.	3.570	
179	CCL CUSTOM MANUFACTURING, REXDALE PLANT, PLANT # 1	ETOBICOKE	1.507	0.000	0.000	1.507	
383	HELMITIN CANADA INC	ETOBICOKE	N.A.	N.A.	N.A.	1.400	
2281	TORCAD DIVISION OF TORCAD LIMITED	ETOBICOKE	1.251	0.000	0.000	1.251	
1401	HENKEL CANADA LTD.,PARKER AMCHEM	ETOBICOKE	N.A.	N.A.	N.A.	1.140	
1497	DOMINION COLOUR CORP - NEW TORONTO	ETOBICOKE	1.064	0.000	0.000	1.064	
776	RECKITT & COLMAN CANADA INC.	ETOBICOKE	N.A.	N.A.	N.A.	0.630	
3890	FLEXTILE LTD	ETOBICOKE	0.630	0.000	0.000	0.630	
199	ETOBICOKE CASTING	ETOBICOKE	0.429	0.038	0.000	0.467	
1502	THE YORKVILLE GROUP - ETOBICOKE PLANT	ETOBICOKE	0.420	0.000	0.000	0.420	
632	BRIMAC ANODIZING (1985) LIMITED	ETOBICOKE	N.A.	N.A.	N.A.	0.390	
4443	CANADIAN BUTTONS LIMITED	ETOBICOKE	N.A.	N.A.	N.A.	0.260	
34	TORONTO SITE - BASF CANADA INC.	ETOBICOKE	0.210	0.000	0.000	0.210	
4462	KILIAN MANUFACTURING - TORLAKE PLANT	ETOBICOKE	0.134	0.000	0.000	0.134	
181	CCL CUSTOM MANUFACTURING, REXDALE PLANT, PLANT # 2	ETOBICOKE	N.A.	N.A.	N.A.	0.130	
3980	STACKPOLE LIMITED - PUMP COMPONENTS DIVISON	ETOBICOKE	N.A.	N.A.	N.A.	0.130	
4493	ASBESTOS BUILDING SUPPLY LIMITED	ETOBICOKE	N.A.	N.A.	N.A.	0.130	
4630	EAGLE ELECTRIC OF CANADA LTD.	ETOBICOKE	0.130	0.000	0.000	0.130	
4519	LAWTER INTERNATIONAL (CANADA) LTD.	ETOBICOKE	N.A.	N.A.	N.A.	0.115	
3409	MICROCOLOR DISPERSIONS LTD.	ETOBICOKE	N.A.	N.A.	N.A.	0.030	981.660
4469	EXIDE CANADA INC.	MAPLE	0.130	0.000	0.000	0.130	0.130
2472	NOVOPHARM LIMITED	MARKHAM	80.280	0.000	0.000	80.280	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
123	ASSOCIATED TUBE INDUSTRIES	MARKHAM	66.000*	N.A.	N.A.	66.130	
2204	STEELCASE CANADA LTD.	MARKHAM	47.501	0.000	0.000	47.501	
3279	FORD ELECTRONICS, MARKHAM PLANT	MARKHAM	37.440*	N.A.	N.A.	37.447	
4594	DESCOR INDUSTRIES INC.	MARKHAM	22.800	0.000	0.000	22.800	
1519	ITL CIRCUITS	MARKHAM	0.000	0.000	4.299	4.299	258.457
4451	CANADIAN AIRLINES - PEARSON AIRPORT	MISSISSAUGA	0.000	0.000	401.000	401.000	
1026	TORONTO INTERNATIONAL AIRPORT	MISSISSAUGA	0.000	0.000	346.413	346.413	
2182	ST. LAWRENCE CEMENT	MISSISSAUGA	220.000*	N.A.	14.900*	235.940	
4172	POLYTECH COATINGS LIMITED	MISSISSAUGA	224.488	0.000	0.000	224.488	
1427	HUDSON GENERAL AVIATION SERVICES INC	MISSISSAUGA	0.000	0.000	162.000	162.000	
1953	PPG CANADA, INC. CLARKSON C&R PLANT	MISSISSAUGA	148.360*	N.A.	N.A.	148.620	
1863	PACKALL PACKAGING INC.	MISSISSAUGA	148.000	0.000	0.000	148.000	
3899	LAKE ONTARIO REFINERY-LUBRICANT CENTER	MISSISSAUGA	130.330	0.000	0.000	130.330	
2737	CARADON INDALEX	MISSISSAUGA	96.200	0.000	0.000	96.200	
566	CUSTOM MEDALLION INC.	MISSISSAUGA	55.406	0.000	0.000	55.406	
3030	PLASTCOAT LIMITED	MISSISSAUGA	36.800	0.000	0.000	36.800	
4607	MULTIPAK LTD.	MISSISSAUGA	36.300	0.000	0.000	36.300	
448	INDUSTRIAL TIRE LTD.	MISSISSAUGA	20.600	0.000	4.700	25.300	
4474	BROAN LTD.	MISSISSAUGA	23.200	0.000	0.000	23.200	
862	MCDONNELL DOUGLAS CANADA LTD	MISSISSAUGA	21.200	0.000	0.000	21.200	
247	DOVER CORP.(CANADA),LTD	MISSISSAUGA	19.000	0.000	0.000	19.000	
4311	GRAPHIC PACKAGING CANADA CORPORATION	MISSISSAUGA	19.000	0.000	0.000	19.000	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
4487	COLUMBIA/MBF	MISSISSAUGA	0.040	0.086	15.486	15.612	
4478	CASTLEGATE CANADA	MISSISSAUGA	11.001	0.000	0.000	11.001	
800	RHONE-POULENC SPECIALTY CHEMICALS	MISSISSAUGA	10.587	0.000	0.000	10.587	
4507	HAWKER SIDDELEY CANADA INC., ORENDA DIVISION	MISSISSAUGA	9.430	0.000	0.000	9.430	
1260	ANACHEMIA SOLVENTS DIVISION OF FIELDING CHEMICALS LIMITE	MISSISSAUGA	5.875*	N.A.	N.A.	8.665	
4471	ARIES FLEXOGRAPHICS LTD.	MISSISSAUGA	6.550	0.000	0.000	6.550	
2010	RCR INTERNATIONAL INC.	MISSISSAUGA	4.700	0.000	0.000	4.700	
120	ASHLAND CHEMICAL CANADA INC.- RESIN & CHEMICAL DIV	MISSISSAUGA	2.982*	N.A.	N.A.	4.125	
1096	ASHLAND CHEMICAL COMPANY	MISSISSAUGA	N.A.	N.A.	N.A.	2.366	
1583	LONG MANUFACTURING	MISSISSAUGA	1.500	0.000	0.000	1.500	
1987	PROGRESS PLASTICS & COMPOUNDS INC	MISSISSAUGA	N.A.	N.A.	N.A.	1.010	
4544	RCR INTERNATIONAL INC.	MISSISSAUGA	0.930	0.000	0.000	0.930	
2355	VINTEX INC	MISSISSAUGA	N.A.	N.A.	N.A.	0.880	
801	RESCO COLOURS	MISSISSAUGA	N.A.	N.A.	N.A.	0.758	
2256	TONOLLI CANADA LIMITED	MISSISSAUGA	0.685	0.001	0.000	0.686	
4617	IPEX INC.	MISSISSAUGA	N.A.	N.A.	N.A.	0.630	
1093	ARMSTRONG MANUFACTURING COMPANY	MISSISSAUGA	N.A.	N.A.	N.A.	0.510	
264	ECOLAB LTD. - NUVIK PLANT	MISSISSAUGA	N.A.	N.A.	N.A.	0.390	
3983	STACKPOLE LIMITED - AUTOMOTIVE GEAR DIVISION	MISSISSAUGA	N.A.	N.A.	N.A.	0.390	
4631	DURACELL CANADA INC.	MISSISSAUGA	0.260	0.000	0.000	0.260	
422	ICYNENE INC.	MISSISSAUGA	N.A.	N.A.	N.A.	0.130	
547	CROWN CHEMICAL PRODUCTS INC.	MISSISSAUGA	N.A.	N.A.	N.A.	0.130	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
1588	MACDERMID CHEMICALS INC	MISSISSAUGA	N.A.	N.A.	N.A.	0.130	
4604	ANCHOR LAMINA INC.	MISSISSAUGA	N.A.	N.A.	N.A.	0.130	
4606	ILSCO OF CANADA LIMITED	MISSISSAUGA	0.000	0.000	0.045	0.045	
1328	GRACE DEARBORN INC	MISSISSAUGA	0.044	0.000	0.000	0.044	
4618	CHAMBERS OF CANADA LIMITED	MISSISSAUGA	0.038	0.000	0.000	0.038	
2003	RADIATOR SPECIALTY COMPANY OF CANADA LTD.	MISSISSAUGA	N.A.	N.A.	N.A.	0.001	
3889	SAMUEL STRAPPING SYSTEMS	MISSISSAUGA	N.A.	N.A.	N.A.	0.001	2210.826
4552	VITAFOAM PRODUCTS CANADA LTD.	NORTH YORK	206.064	0.000	0.000	206.064	
1815	OSF INC.	NORTH YORK	190.637	0.000	0.000	190.637	
4518	LAWSON MARDON FLEXIBLE PACKAGING	NORTH YORK	186.102	0.000	0.000	186.102	
3989	JACOBS & THOMPSON INC.	NORTH YORK	116.347	0.000	0.000	116.347	
538	CROWN CORK & SEAL CANADA INC. - PLT.245	NORTH YORK	102.970	0.000	0.000	102.970	
4131	MCCORQUODALE COLOR CARD	NORTH YORK	79.173	0.000	0.000	79.173	
282	DOW CHEMICAL CANADA INC. - WESTON	NORTH YORK	61.127	0.000	0.000	61.127	
2346	VAN WATERS & ROGERS LTD. DOWNSVIEW ON	NORTH YORK	40.608*	N.A.	N.A.	41.845	
111	APOTEX INCORPORATED	NORTH YORK	28.700	0.000	0.000	28.700	
4422	VAN WATERS & ROGERS LTD. WESTON	NORTH YORK	28.155	0.000	0.000	28.155	
4470	ALFIT MANUFACTURING	NORTH YORK	22.000	0.000	0.000	22.000	
1189	DE HAVILLAND INC.	NORTH YORK	17.486	0.000	0.000	17.486	
574	DAYCO	NORTH YORK	13.879	0.000	1.200	15.079	
1169	CELESTICA INC. A SUBSIDUARY OF IBM CANADA LTD.	NORTH YORK	13.200	0.000	0.000	13.200	
3559	FLINT INK CORPORATION OF CANADA	NORTH YORK	5.900	0.000	0.000	5.900	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
2022	REICHHOLD LIMITED	NORTH YORK	4.619*	N.A.	N.A.	5.899	
1165	CELANESE CANADA INC. WESTON	NORTH YORK	3.100	0.000	0.000	3.100	
2044	REYNOLDS ALUMINUM COMPANY OF CANADA	NORTH YORK	2.500	0.000	0.000	2.500	
1480	INDALLOY	NORTH YORK	2.230	0.000	0.000	2.230	
2257	SUN CHEMICAL LTD. (WESTON)	NORTH YORK	N.A.	N.A.	N.A.	1.430	
804	RIEGER FLEXO & GRAVURE LIMITED	NORTH YORK	0.500	0.000	0.000	0.500	
4640	CANADIAN CUSTOM PACKAGING COMPANY	NORTH YORK	N.A.	N.A.	N.A.	0.282	
3004	CARADON PEACHTREE DOORS	NORTH YORK	N.A.	N.A.	N.A.	0.130	
4592	ROOT INDUSTRIES INC.	NORTH YORK	0.005	0.000	0.000	0.005	1130.861
814	SCHWARTZ CHEMICAL OF CANADA LIMITED	PICKERING	5.000	0.000	0.000	5.000	
3161	PICKERING NUCLEAR DIVISION	PICKERING	N.A.	0.757*	N.A.	0.903	
4548	ROBERTSON AND DAWSON LTD	PICKERING	0.380	0.000	0.000	0.380	6.283
2042	REYNOLDS EXTRUSION COMPANY	RICHMOND HILL	22.800	0.000	0.000	22.800	22.800
3553	SURPASS WEST HILL PLANT	SCARBOROUGH	779.000	0.000	0.000	779.000	
2469	NOVOPHARM LIMITED	SCARBOROUGH	629.750	0.000	0.000	629.750	
4465	FPC FLEXIBLE PACKAGING CORPORATION	SCARBOROUGH	194.204	0.000	0.000	194.204	
423	IGI INTERNATIONAL WAXES	SCARBOROUGH	96.400	0.000	0.000	96.400	
1245	OWENS-CORNING TORONTO PLANT	SCARBOROUGH	57.604	0.000	0.000	57.604	
4175	SCHENECTADY CHEMICALS CANADA LIMITED	SCARBOROUGH	37.765*	N.A.	N.A.	41.357	
3556	SURPASS UPTON ROAD PLANT	SCARBOROUGH	27.000	0.000	0.000	27.000	
3444	QUEBECOR PRINTING HAUGHTON	SCARBOROUGH	19.895	0.000	0.000	19.895	
4485	CINRAM LTD.	SCARBOROUGH	17.750	N.A.	0.001	17.752	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
577	DEXTRAN PRODUCTS LIMITED	SCARBOROUGH	15.601	0.000	0.000	15.601	
2470	NOVOPHARM LIMITED	SCARBOROUGH	13.570	0.000	0.000	13.570	
4596	CALSTONE INC.	SCARBOROUGH	13.000	0.000	0.000	13.000	
374	HALLTECH INC.	SCARBOROUGH	9.640*	N.A.	0.130*	10.550	
4426	W.R.KEY LIMITED	SCARBOROUGH	5.560	0.000	0.000	5.560	
2065	ROHM & HAAS CANADA INC WEST HILL	SCARBOROUGH	1.040*	N.A.	N.A.	5.140	
859	MCASPHALT INDUSTRIES LTD.	SCARBOROUGH	4.880	0.000	0.000	4.880	
2331	VALSPAR INCORPORATED	SCARBOROUGH	2.740*	N.A.	0.360*	3.140	
4529	PRECISIONEERING LTD.	SCARBOROUGH	2.289	0.000	0.000	2.289	
4619	U.S.E. HICKSON PRODUCTS LTD.	SCARBOROUGH	N.A.	N.A.	N.A.	1.260	
4512	MILPLEX CIRCUIT (CANADA) INC.	SCARBOROUGH	0.634	0.000	0.000	0.634	
321	EXACT PRINTING PLATE LTD.	SCARBOROUGH	0.386	0.000	0.000	0.386	
216	CRAMCO INC.	SCARBOROUGH	N.A.	N.A.	N.A.	0.380	
2903	SIGNODE CANADA	SCARBOROUGH	N.A.	N.A.	N.A.	0.260	
1993	PROTOTYPE CIRCUITS INCORPORATED	SCARBOROUGH	N.A.	N.A.	N.A.	0.250	
90	ACME STRAPPING	SCARBOROUGH	N.A.	N.A.	N.A.	0.130	
4639	M & M PLATING COMPANY LTD.	SCARBOROUGH	0.000	0.000	0.035	0.035	
4624	AT DESIGNS INSIGNIA	SCARBOROUGH	0.003	0.000	0.000	0.003	1940.030
3017	POLYRIM (GREENLANE)	THORNHILL	8.300	0.000	0.000	8.300	
4536	RAYWAL LIMITED	THORNHILL	7.518	0.000	0.000	7.518	15.818
1870	PAPERBOARD INDUSTRIES CORPORATION	TORONTO	70.000	0.000	0.000	70.000	
459	INTERGEN BIOMANUFACTURING CORPORATION	TORONTO	56.474	0.000	0.000	56.474	

			RELEASES (TONNES)				
NPRI ID	FACILITY NAME	CITY	AIR	WATER	LAND	TOTAL (1)	CITY TOTAL
113	A.R.CLARKE & CO LTD	TORONTO	27.200	0.000	0.000	27.200	
743	NATIONAL RUBBER COMPANY INC.	TORONTO	6.690	0.000	0.000	6.690	
742	NATIONAL RUBBER COMPANY INC.	TORONTO	2.670	0.000	0.000	2.670	
643	CANADA SQUARE RESINS	TORONTO	1.183*	N.A.	N.A.	1.603	
466	JOHN E. GOUDEY MANUFACTURING LTD.	TORONTO	N.A.	N.A.	N.A.	1.358	
3112	BENJAMIN MOORE & CO. LIMITED, TORONTO PLANT	TORONTO	0.621*	N.A.	N.A.	0.721	
2016	REDPATH SUGARS	TORONTO	N.A.	N.A.	N.A.	0.675	
3658	LEVER, A DIVISION OF UL CANADA INC.	TORONTO	N.A.	N.A.	N.A.	0.490	
642	THE CANADA METAL COMPANY LIMITED	TORONTO	N.A.	N.A.	N.A.	0.305	168.186
2567	CARPENTER CANADA LTD	WOODBRIDGE	240.000*	N.A.	N.A.	240.094	
2633	STEELWOOD DOORS CO.	WOODBRIDGE	80.940	0.000	0.000	80.940	
4498	EGAN VISUAL INC.	WOODBRIDGE	26.837	0.000	0.000	26.837	
2388	WOODBRIDGE FOAM CORPORATION	WOODBRIDGE	N.A.	N.A.	N.A.	0.009	347.880
478	KODAK CANADA INC.	YORK	81.000	0.000	0.000	81.000	
4497	EASTMAN CHEMICAL CANADA INC.	YORK	1.780	0.000	0.000	1.780	82.780

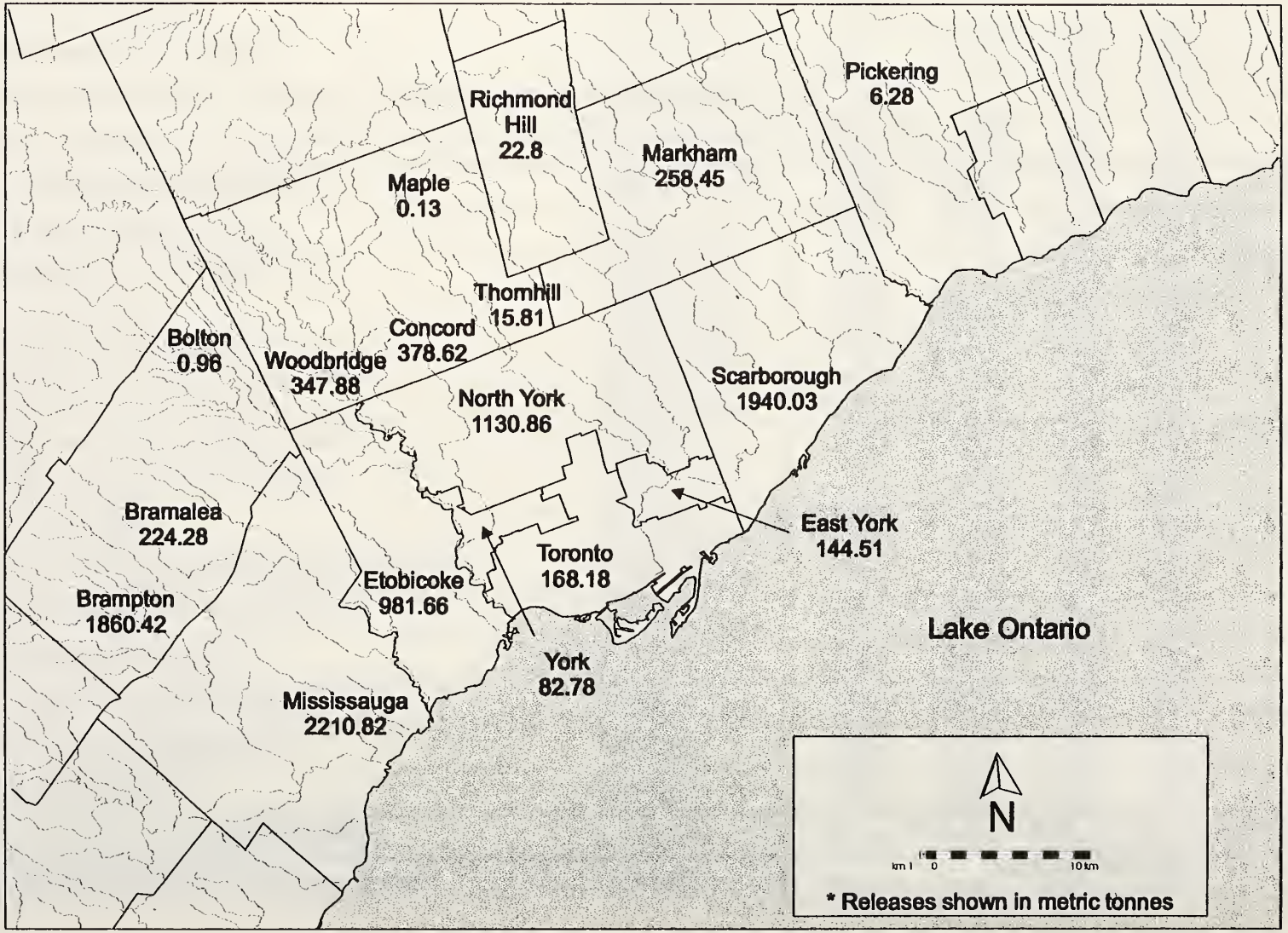
(1) The values in the "Total" column are correct; however, for some facilities the values for air, water, and land are imprecise or unavailable since the breakdown by medium does not always have to be reported for substance releases of less than one tonne.

The following symbols indicate where this occurs:

* value may be higher

N.A. - Not available, may be zero.

Figure 5-14.
NPRI 1994: Releases* from Cities in the Toronto RAP Area



6.0 FUTURE DIRECTION

6.1 Outstanding Issues

The 1994 NPRI provides the second year of publicly accessible NPRI data. In Ontario, as previously mentioned, there are a number of facilities which reported to the 1993 NPRI, but have not submitted a report for 1994. Many facilities have either intentionally not reported or have not notified the Ontario Regional NPRI Office of their reporting status. The same holds true for the 1995 NPRI.

The NPRI presently does not require a facility which does not meet the NPRI reporting criteria to notify Environment Canada of its reporting status. However, any facility that meets all NPRI reporting criteria for a given year is legally required to submit an NPRI report before the deadline date. If a facility has met all the reporting criteria, but has not submitted a report to the federal Minister of the Environment before the deadline date, it has in effect violated Section 16 of the Canadian Environmental Protection Act (CEPA). All "reporting" facilities that have not complied with an NPRI Gazette Notice can be punished under the full extent of law. The maximum penalty for not complying with a Section 16 Notice under CEPA is a maximum of six months in jail and/or a fine not exceeding $200,000.

Determining which facilities should report to the NPRI requires a great deal of resources. Previously, the Ontario Regional NPRI Office has selected facilities based on a "broad" outreach program. A more selective sector-based analysis is required to further identify facilities which should report to the NPRI.

Proposals for changes to the NPRI were tabled in 1996 by Environment Canada and issued for public consultation. The main proposal, if implemented, will require facilities to provide pollution prevention information for the 1997 NPRI. Other proposed changes include the addition of new substances, including micropollutants. For some substances reporting will be based on the amount that a facility releases into the environment rather than the quantity of the substance manufactured, processed or otherwise used. These proposed changes would require many new facilities to report to the NPRI.

6.2 Areas of Concern

Many individuals and groups have inquired about the validity and accuracy of submitted NPRI release and transfer estimates. The NPRI does not require a reporting facility to perform any additional testing to verify those estimates. The four methods of estimation include the following: direct measurement, emission factors, mass balance and engineering calculations. A reporting facility may use any one of the four methods to determine their estimates.

Environment Canada has provided around fifty presentations to the public over

the last three years to illustrate and clarify the NPRI requirements. Additional effort and work is required by Environment Canada to quantify estimation methods. One scenario would be to work co-operatively with industrial associations to develop more accurate emission factors and to assist those associations in verifying their member's estimates. This proactive approach could be used to promote programs of both federal and provincial interest, such as pollution prevention and the COA.

7. CONCLUSIONS

The National Pollutant Release Inventory (NPRI) is entering its third year of reporting. Co-operation from industry, familarization with the program and state-of-the-art reporting software have combined to make the NPRI a continuing success.

The NPRI is the only national, publicly available inventory of on-site releases and off-site transfers in waste where data is reported on a facility-by-facility basis. The NPRI has been used by Environment Canada to support and guide the direction of its core programs related to the management of toxic chemicals. Programs include the Priority Substances List 2, the Strategic Options Processes and inventories of persistent organic pollutants and organic chemicals.

A major benefit that was recognized in the second year of reporting was the triggering of public and industry interest in overall releases and transfers in Canada, as well as in Ontario. Many individuals have inquired about the NPRI and the potential use of the data. Ontario-based community groups, media and the general public have approached Environment Canada about getting copies of the 1993 and 1994 NPRI Summary Reports, and about the availability of the NPRI information on the Internet and on Environment Canada - Ontario Region's bulletin board system (BBS).

An encouraging part of this report is the forecasted reduction in Ontario releases from 57,200 tonnes in 1994 to 40,700 tonnes in 1997.

The NPRI is evolving. Consultations have been initiated by Environment Canada to add the tracking of pollution prevention and mandatory reporting of recycling activities, to add more substances to the NPRI list, and to specify new release triggers for some substances to inventory significant releases. The present NPRI substance list and reporting criteria leave out important micro-pollutants (polyaromatic hydrocarbons, dioxins and furans).

The Ontario Ministry of Environment and Energy (MOEE) has asked Environment Canada to add the common air pollutants (sulphur dioxide, nitrogen oxides, volatile organic compounds, carbon monoxide and particulate matter), greenhouse gases (carbon dioxide, nitrous oxide, and methane) and inhalable particulate matter (PM-10) to the NPRI list of substances. Presently, Environment Canada and the MOEE work together to compile emission inventories of common air pollutants and greenhouse gases. These inventories are needed for domestic and international trans-boundary environmental management programs and will enable the MOEE to track the progress of the proposed Ontario Smog Plan. The data in the common air pollutant emissions inventory is collected through a survey which is separate from the NPRI. If common air pollutants were included in the NPRI, facilities would benefit by having one less inventory survey to report to. The greenhouse gas emissions inventory is compiled using data from Statistics Canada; however, including it in the NPRI would improve its accuracy because the NPRI's method of determining releases--surveying facilities--is more accurate.

In Ontario in 1994, the fifteen highest released NPRI substances accounted for 80% of the NPRI releases. The Ontario MOEE has standards or guidelines for each of the top fifteen substances. Thirteen of the top fifteen substances have an air standard, twelve have a water standard and eight have a land standard.

Releases of five of the top fifteen substances (sulphuric acid, manganese, dichloromethane, zinc and copper) have increased from 1993 to 1994. It is recommended that Environment Canada and the Ontario MOEE work together to determine which facilities are responsible for the increases, and why the increases occurred.

8. REFERENCES

1. A National Pollutant Release Inventory For Canada. The Final Report For the Multi-stakeholder Advisory Committee, December 1992.

2. Substances in the National Pollutant Release Inventory. Extract Canada Gazette, Part I, 1993-1996.

3. Summary Report 1993, The National Pollutant Release Inventory. Minister of Supply and Services Canada. Cat # En40-495-1/1993E. ISBN #0-662-23235-6, 1994.

4. Summary Report 1994, National Pollutant Release Inventory. Minister of Supply and Services Canada. Cat # En40-495-1/1994E. ISBN #0-662-24996, 1996.

5. 1994 - A Guide For Reporting to the National Pollutant Release Inventory. Minister of Supply and Services Canada. Cat # En40-495/1995E. ISBN #0-662-23212-7, 1995.

6. 1995 - A Guide For Reporting to the National Pollutant Release Inventory. Minister of Supply and Services Canada. Cat # En40-495/1996E. ISBN #0-662-24031-6, 1996.

7. The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem - 1994, April 1994.

8. Canadian Great Lakes Remedial Action Plan Update. Great Lakes Information Management Resource (GLIMR) on the Internet (URL is http://www.cciw.ca/glimr/raps/overview.html#DESCR), Environment Canada, August 1995, last updated June 1996.

November 21, 1996

To: MOEE and EC-Ontario Region Staff

From: Patrick McInnis
Environmental Monitoring and Reporting Branch
Environmental Information and Systems Section

Re: Final version of the Ontario Report on the 1994 NPRI

A copy of the final version of the 1994 National Pollutant Release Inventory (NPRI) Ontario Report is enclosed. The major changes made in the final version are that there are more conclusions (Section 7.), and the numbers in the executive summary and conclusions are more precise. Otherwise, no numbers that were in the draft have been changed. Minor editing changes were made to improve clarity and to correct errors in places such as table/figure titles, table headings, the List of Figures, etc.

For those of you who have received a second, unbound copy, its purpose is for photocopying to meet any further demand for the report in your branch/region.

If you have any questions, please call me at (416) 235-5772, or fax me at (416) 235-6037.